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Servants of Man

AMERICAN GAS
ASSOCIATION
MONTHLY

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James M. Beall, Editor

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Conservation, Research and Sales Stressed at Natural Gas Meeting

J. B. Tonkin

WITH an official registration of 600 delegates, and an estimated total attendance of 800, the convention of the Natural Gas Department of the American Gas Association, held at Memphis, May 6-9, brought together one of the largest and most representative groups of natural gas men in years.

The program featured 68 addresses and reports and included a variety of entertainment functions in keeping with natural gas traditions. Business sessions of the convention were particularly well attended and discussions were free and animated, reflecting a keen desire on the part of delegates to secure the latest information on current problems and developments.

Low Rates Urged

Reporting as chairman of the Natural Gas Department, J. B. Tonkin declared consumption of natural gas was declining, due to "concentrated efforts during these times to economize in every possible way, and the development of more efficient and economical gas burning appliances." He said many of his hearers might feel justified in asking a higher rate for gas, but he warned that any such action was in danger of lessening consumption and reducing earnings.

"First," he stated, "we should keep our rates as low as we possibly can to retain the domestic load and increase such sales; then we should stimulate the industrial sales and straighten out the curve in the demand load as much as possible when industry is again normal. Our job, more than ever before, is to increase the sales of gas."

In his address at the opening session, President P. S. Young emphasized the fact that if social security is brought about successfully, it must come through the efforts of business, through scientific development and through the application of industry. "I think we are all prone to concentrate too much on our own business," he declared. "We must take time to consider business in a larger view. There are certain fundamental requisites for economic improvement. We all believe that business must have the support of a sound banking and currency situation and that the country must have a balanced budget in the near future. There must be the widest possible opportunity for creating a structure upon which business can build and promote a wider distribution of the things which contribute to the well-being of all."

Laying a natural gas artery in rough country

Industrial Sales Rise

Reviewing progress in the natural gas field, he said: "Sales of natural gas for industrial purposes are increasing and, during the season just passed, the sales for house heating purposes were most gratifying. The domestic field, however, is giving us concern. Although the total number of customers in the industry is increasing, the sales to domestic customers are still substantially below those of five years ago. We may surmise that this is due in part to the necessity for the practice of economies in the home. Sales of natural gas per domestic consumer are off a little more than for the manufactured gas business. Serious discussion is centering around this point. We have appointed a special committee in charge of research work on domestic appliances, upon which are

represented all of the natural gas sections of the country, which is earnestly at work and which will hold a meeting this week. It is too early to forecast what recommendations may be made but the determination of the industry to cope with this situation will, I am sure, be fully manifested."

Stating that there are certain facts in connection with the national situation which we must all recognize, Mr. Young continued: "One is that industrial recovery is on the way. It is evident that the natural vitality of the country is reasserting itself. Another is that in the past few years, efficiencies in utilization of fuels of all sorts have been greatly improved. The customer of tomorrow is going to expect and is going to use the fuel in which these greater efficiencies are embodied.

"It is gratifying to us now, and I am sure it is going to be increasingly gratifying in the near future, to realize that through our resolute program of research in the fundamentals of combustion and in utilization through appliances, the gas industry has fully held its position and is ready and able to compete with any other fuel. This is true in both domestic, commercial and industrial fields.

"We frankly recognize that we are in a competitive business and are stimulated thereby to exert greater efforts to satisfy our customers, to broaden our markets and to improve the character of our service. We can and do face the future with confidence. We do so as the result of capable and constructive thought and action by the members of the industry, cleared through and coordinated by the activities of the American Gas Association."

Following Mr. Young, Alexander Forward, managing director of the Association, announced statistics indicating some degree of recovery for the gas business. "The peak number of customers served by the manufactured and natural gas industries was reached in May, 1931, at 16,015,000," he said. "The low occurred in July, 1933, when we served 15,056,000 customers —a reduction of 6% from the top.

Customers Regained

"Since July, 1933, a gradual improvement has been shown so that by the end of January, 1935, we had regained 378,000 customers. Our revenues reached the low point in April, 1933, where they were 12% below the same month of 1932. Since then there has been gradual improvement until the revenues for 1934 showed an increase of 2.6% over 1933; nevertheless they were still 12% below the year 1930—our peak year."

Mr. Forward concluded his brief address with a statement that the Association exists for the sole purpose of serving the industry and is eager to be an organization in which the development of the powers and resources of the individual may be fully developed. Membership and service on its committees afford the opportunity, he said.

An important contribution to the deliberations of the convention was the paper "Taxation and Legislation" by Ralph W. Gallagher. At the last moment Mr. Gallagher was unable to be present and his paper was presented by F. H. Lerch, Jr., president of the Interstate Natural Gas Co., New York. This paper appears elsewhere in this issue.

Another contribution to the program which caused widespread and favorable comment was the report of the gas well deliveries subcommittee, presented by the chairman, N. C. McGowen. One of the principal objectives of this committee, Mr. McGowen explained, has been to study methods for determining open-flow capacities of gas wells without having to open the wells wide to the atmosphere. The committee realized, he said, that periodic tests of this kind, as required by many state regulatory bodies, resulted in gas waste and were harmful to wells liable to water encroachment and sand troubles, when the rates of flow are high. However, he pointed out, the work of the committee has been more far reaching than deciding on methods of determining open-flow capacities of gas wells.

Annual dinner of the Executive, Managing and Advisory Committees of the Natural Gas Department held at Hotel Peabody, Memphis, during the Natural Gas Convention

Gauging Well Deliveries

"It was believed that open-flow capacity data alone did not furnish the operator with adequate information relative to the ability of his gas wells to deliver gas into pipe line systems," he declared. "Accordingly, it was decided that this committee should study not only open-flow capacities but also delivery capacities under conditions of actual operation. The committee further decided that differences in meaning of open-flow capacities and gas reserves should be stressed; that is.

large open-flow volumes do not necessarily imply tremendous gas reserves, nor do they indicate that large volumes of gas can be delivered to gas transmission lines against high back pressures.

"During the research of this committee so far, tests have been made on 582 gas wells located in the principal gas-producing areas of the United States. These tests have helped develop a practical relationship between pressure and rates of flow which can be used for calculating flows under any pressure condition in a gas well and have helped when studying application of pressure and flow data to many gas-production practices. Laboratory investigations essential in the study also have been conducted.

Bureau of Mines Report

"Two Bureau of Mines reports were published in May, 1929, which explained preliminary ideas for gauging gas well deliveries. Since the publication of these reports, information on this problem has been released by progress reports of this committee to the Technical and Research Committee and to conventions of the Natural Gas Department. It was decided by the committee last year that the research had progressed far enough to warrant the preparation of a comprehensive report. Therefore, a proposed Bureau of Mines Technical paper, entitled 'Back Pressure Data on Natural Gas Wells and Their Application to Production Practices,' consisting of approximately 130 printed pages with 66 illustrations, has been prepared. This report has been criticised by the members of this committee and by members of the Technical and Research Committee, and after being edited to consider these criticisms, the report has been sent to the Washington office of the Bureau of Mines for approval before being published. The discussions contained in this proposed technical paper have been summarized and this summary will be printed by the Association as a part of their technical 'code.' "

Cooperation of the United States Bureau of Mines, particularly along the line of conservation of natural gas, was assured by Dr. John Finch, director.

Speaking on the subject "Need and Justification of Natural Gas Reserves and Conservation Thereof," H. A. Wallace, president of the Charleston Group, Columbia Gas and Electric Corp., said he could not "conceive of any natural gas utility as a going concern without probable gas reserves that will give it a life of at least twenty years. If reserves have a life of only five to ten years, and prevailing gas rates are maintained, few if any properties can be profitably operated unless that life can later be extended either by purchases or new contracts. Under such urgent conditions as will exist when new reserves must be obtained, any chance of making reasonable production purchases or profitable gas purchase contracts is unthinkable. The available reserves adjacent to fixed investment will, by that time, be closely held and cost all the traffic can bear; quite likely more.

Straight through the swamps of Louisiana

Adequate Reserves Necessary

"It is possible that some members of this association may be able to present another side to this question of reserves, but my experience in the operation of natural gas properties only emphasizes that the need and justification of adequate gas reserves is a most evident necessity heretofore universally admitted."

Another speaker on the same subject, Ralph E. Davis of Ralph E. Davis, Inc., New York, declared that whether or not the industry likes the problem of conservation, "It is with us and we shall never be free from it." He said that as a nation, we have slowly become committed to a policy of conservation. Failure to conserve a natural resource is found in everlessening degree and in smaller and still smaller areas, he explained. In bringing his paper to a close, Mr. Davis said: "The notable achievement in gas conservation already realized—in the eastern fields for more than a decade—in Louisiana for many years—in California since 1930 and now definitely promised by legislative act in Texas, although closing the gap to major wastage, is not necessarily the final step in this program. Gas-oil ratios now considered reasonable will doubtless in time be considered obsolete. Reduction in these ratios will then be in order. Line leakage today is small as compared to gas lost otherwise. Leakage during transmission, even in long lines, is today a very minor matter. The more valuable gas becomes, the more completely will its loss be controlled.

Meeting Competition

"Of the three mineral fuels—coal, oil and natural gas—the latter is the most easily taken from its place in the earth. Gas fields that have been abandoned are known generally to have given up some 90% of the total gas in the reservoir. Of oil we can only say that generally only about one-fourth of the total reserve is brought to the surface. In coal mining approximately one-third of the seam is left beneath the surface. Within the past two or three years oil producers have notably improved their production methods. Complete conservation never can be reached, but in natural gas—and outside of the State of Texas—a high degree of conservation has been attained."

The conference on distribution, sales and utilization, was a feature of the convention, and a large amount of interest was shown in the addresses presented on the subject "Modern Methods of Meeting Competition." W. W. Winter of Atlanta advised his hearers to "meet the challenge of Government competition with aggressive sales methods, newspaper advertising and exhaustive research work to improve service." He declared that utility executives must get out of their

comfortable seats and work with the ingenuity of other competitive, non-utility business leaders.

H. G. Bonner, of Knoxville, stressed the fact that competition is as necessary in the progress of the gas industry as in any other. "Even if we had no competition in the heating field," he said, "we would still be in competition with every other business and profession for our share of the customer's spendable income. To get our share of this income, gas service plus gas appliances must be at least equally as good a buy in the mind of the customer or prospect as is a radio, an automobile or a sack of flour. So let's not hope for freedom from competition as long as it is fair, we need it to keep us up and at it. But we must be awake and doing our best as an industry if we are to continue to hold our rightful position in the face of competition.

"I am fully convinced that we are in for a period of higher prices for almost everything except utility service. Our only salvation is to increase our volume of sales and the electric industry, by the same process of reasoning, is going to make every effort to increase their volume at the expense of gas. If we sit by and let them do it we deserve to suffer the consequences. What is the best way to prevent it? The immediate starting of a long range research program by the cooperative effort of the entire gas industry.

Cooperative Research Needed

"If the whole industry cooperates, this research program would burden no one. One-twentieth of 1% of gross revenues of the entire industry including manufacturers—one dollar of each $2,000 of total sales—would provide a fund of more than $400,000 a year for research which, over a period of years, if wisely administered, should put us in front and keep us there, provided of course we intelligently use the practical ideas and methods developed by such a research program. We can't expect the manufacturers to do this job alone. They can't afford it and they would not reap the major benefits. It must be done by a united industry."

A strong plea for employee selling was made by E. M. Tharp of Columbus, Ohio. "Some years ago when we started employee selling in our organization there were many to help along the idea by declaring, 'You can never teach bill collectors, line walkers, drillers to sell'" he said. "When we summed up the results for 1934, it was a matter of record that 91% of all employees had sales to their credit. The remaining 9% were confined to no classification or group but were scattered individuals.

"Every year of employee selling in our company has been a better year than the previous one, despite depression. Last year employees turned in 30,330 prospects, of which 10,400 or more than one-third, were sold gas-burning equipment. In 1932 an employee lead was worth $10.29; in 1933 it was worth $17.80; and in 1934 it was worth $23.63."

Employee Selling

Mr. Tharp explained that his company did not start with the idea of selling gas-burning equipment so much as with a purpose of creating sales-mindedness in the personnel. "It is estimated that on an average every employee makes more than 150 contacts a month," he said. "They are neighbors, club associates, church folks, citizens. Theirs is certainly a voice of the people, an element and influence in public opinion and political determination. Why shouldn't they be constructively, educationally expressive of our business? Why shouldn't they sell?"

S. B. Severson of Buffalo, N. Y., in his paper "Whole Organization Attention to Sales" also stressed the value of employee selling activities. "The method of encouraging employee participation in the sales activities of a company is as logical in development as that pertaining to the production, transmission and distribution of natural gas" he declared. "The benefits which accrue to an organization which has perfected this method will be as great as those arising from the technical perfection of other natural gas operations. One has only to look back over the past 15 or 20 years to see that the time, effort and untiring enthusiasm with which the natural gas industry tackled its perplexing problems has not been spent in vain but has caused the tremendous advances which the industry has made. It is also only necessary to observe the results and possibilities that accrue to a company whose entire personnel is salesminded to the core to see that this is another way whereby the full benefits of the efforts exerted by the industry in the past can be realized and its usefulness to the full wants of the greatest number of the consumers be made more complete. The future of the natural gas industry, especially during the next decade, lies, I believe, in the adoption of methods that will produce organizations, whose whole employee personnel is sales conscious in the fullest sense of the word."

In closing his paper Mr. Severson said it might be thought that extra activities engaged in by the employees would tend to decrease their operating efficiency. Quite the reverse was true in his experience, he said. Most of the selling activities by operating employees, he pointed out, were done on the employee's own time.

Five speakers contributed to the discussion of "Modern Advertising for Sales." George Ketchum, Pittsburgh, strongly advocated the use of greater advertising space and continuity in advertising messages as the best means of getting results. Other speakers on this program were C. D. Greason, Kansas City, Legare Davis, Atlanta and W. C. Grant and W. C. Wiegel of Dallas.

Stating that no new business might be so beneficial to the gas industry as development of efficient gas air conditioning units, George M. Parker of St. Louis stated: "That the industry has a great opportunity to enter the air conditioning field and take on a sizable load."

Gas Hair Dryers

C. K. Patton of Dallas said that the use of gas hair dryers is steadily promoting the sale of natural gas. "More important than the revenue from the increase in the use of gas in drying hair," he explained, "is the fact that the women who go into the shops and see gas used in this way are naturally impressed by its efficiency and naturally think of gas for their own needs, instead of a competing fuel."

A number of technical papers and reports of unusual interest were presented at the convention and drew forth much favorable comment.

H. C. Hancock of New York reported for the pipe line flow committee on investigations into the transmission of natural gas. Mr. Hancock also submitted the pressure piping code of the American Society of Mechanical Engineers.

H. C. Cooper of Pittsburgh presented the report of the main technical and research committee and subcommittees, and T. R. Weymouth, Pittsburgh, read the report of the gas measurement subcommittee.

Ed. C. Connor and P. McDonald Biddison were joint authors of a paper entitled "Common Carrier Obligations as Applied to Natural Gas Transmission Lines." They took occasion to emphasize the fact that the imposition of a common carrier obligation upon natural gas transmission lines will disrupt the operation of a great agency of public service by a definite perversion of its normal functions, and that by so doing, will create a situation definitely inimical to the public interest.

Improvements in Transmission

E. R. Duree of Omaha, Neb., in a paper "Developments and Improvements in Gas Transmission" declared that the chief factors contributing to improvement and development in the transmission business have been:

"The development of tight pipe joints that will hold for a long term of years without leakage or interruption occurring and

"The development of high carbon, thin walled steel pipe with high tensile strength plus

"The development of mechanical equipment rendering the labor cost economical to construct lines of long distance and

"The development of gas engines to high efficiency for the recompression of gas."

"In view of the present large diameter, long-distance pipe lines in successful operation, one does not have to strain the imagination to visualize even longer and bigger lines than those at present, if sufficient quantities of natural gas reserves continue to be available in the future to justify the construction of these gigantic projects," he concluded.

Use of gas engines for power was described by W. J. Briggle, Jr., of Dallas, who announced:

"Prior to 1931, the Lone Star Gas System had in excess of 22,000 hp. in gas engines operating on their lines. Today we have in excess of 40,000 hp. or an increase of approximately 80%. Of this total horsepower, 25% is serving in ice plant operation. This load is particularly valuable in that these plants operate continuously at a high load factor during the summer months when gas sales are naturally at their lowest. The majority of ice plant prospects of today are using electricity for power and the cost per kw. averages from 1¼c to 2c. On this basis, a gas engine plant may be installed and a saving from 35% to 50% may be expected."

Arthur B. Allyne of Los Angeles, summed up his paper "The Dehydration of High Pressure Natural Gas" by saying there are many problems pertaining to the subject that still remain without a solution. For the immediate future, he recommended that thought and investigation on this subject should be turned in the following directions:

1. A more liberal interchange between companies of data already at hand.

2. Prevention and means of eliminating freezeups of equipment due to the formation of hydrates in pipe lines and in dehydration plants employing the cooling principle.

3. Development of means of continuously recording the dew point of gas in a line at high pressures, as a means of dehydration plant control.

4. Construction and operation, under field conditions, of at least small-scale dehydration plants using Silica Gel and calcium chloride brines.

A report on "Some Aspects of the Corrosion Problem in a City Plant" was presented by Charles F. Turner of Cleveland, who concluded as follows:

"I should like to emphasize the importance of following a logical procedure in abating the ravages of corrosion and of intelligently engineering all phases of a protection program whatever that program may be. This should include surveys not only of soil characteristics but of electrolysis conditions and the keeping of accurate records of pipe failures. These records need not be elaborate and costly but they should be specific, showing the kind of pipe, its age, whether it was coated or bare, whether the couplings were insulating, the type and resistivity of the soil, the magnitude of stray currents and their flow, and other pertinent information. We cannot stress too strongly the value of information of this kind. After a system of record keeping has been initiated it is possible to begin a corrosion map which, as time goes on, will outline the areas where special effort should be made to reduce failures. These records very often serve as a guide in determining where coatings should be used and where they should not be used, where it seems expedient to recondition and where it seems best to renew the pipe."

Opposition to the pending Wheeler-Rayburn utility holding company bill was registered at the convention in the form of a resolution introduced by Frank Chase, of Dallas. It was unanimously passed and copies were forwarded to appropriate committees of Congress.

Oppose Holding Co. Bill

The resolution stated that passage of the Wheeler-Rayburn bill as it affects the natural gas industry would be disastrous to that industry and against the public interest. The resolution declared, further, that because of problems peculiar to the natural gas industry, that industry could not be linked with electric utilities in the regulation of holding and operating companies, and Congress was asked to await the report of the Federal Trade investigation into the natural gas industry before making any attempt to regulate the industry.

Three cities put in bids for the 1936 meeting—New Orleans, Dallas, and Tulsa. Announcement of the meeting place will be made later.

Taxation and Legislation

By R. W. GALLAGHER
Standard Oil Co. of New Jersey

R. W. Gallagher

PROGRESS in the natural gas industry speaks for itself and tells a proud story of accomplishment in pioneering, engineering, marketing and service. The problems have been searched out and solved in order to give natural gas its proper place as a servant of the fuel-consuming public. We have strengthened our moral fibre as well as our physical being in wrestling with the hazards and emergencies of our business, and I am proud to say that I am associated with the natural gas industry and I believe you can all honestly say the same thing.

However well grounded our belief may be in our own integrity, and I don't believe that it is egoism to have that belief, it does not appear to be sufficiently apparent to convince those who direct our political destinies. A good job well done hasn't been enough to convince our idealists that we know what we are doing and may be trusted to keep on paying our way and creating value to the good of all.

Tax Barrier

It is too bad but it is the inescapable fact, so we might as well face it. It is just another barrier to hurdle. It is a different kind of barrier than the practical natural ones in our everyday life because it is insidious and intangible and hard to grasp and fight.

Taxes are familiar to all of us and I'm only going to point out some salient points in today's tax program which distinguished it from the old regime.

Legislation, as today perpetrated, if I may use that word, could be the subject of an all-day discourse so again I want to tell you only briefly of the matters immediately under my observation. Other industries, such as the railroads, have long suffered from the effects of excessive taxation and destructive regulation. Perhaps we have now reached sufficient stature as an industry to be a similar target. Anyway, natural gas is a target and back of the thrusts is the unmistakable desire to confiscate. The Federal Government's attack is most direct; the States get there but by more indirect methods.

Legislative Flood

This season has seen 44 state legislatures in session. In California alone nearly 4,000 bills were introduced; in staid old Massachusetts, which is regarded as the last stronghold in conservatism, nearly 2,400. More than a reasonable proportion of the bills which flood the state legislatures are efforts to regulate or tax public utilities. Many are designed to punish the utilities. Many others have been introduced in the obvious anxiety of the legislators that the state be not overlooked when Federal appropriations are made to provide for social betterment, such as unemployment insurance and old age pensions. I am not commenting on the advisability of such legislation, but coming at this time it does not simplify the problems in our industry.

It does not require much imagination to picture the chaos which would result if all these measures were enacted and the industry tried to carry on. Fortunately, the mortality rate, in committee and on the floor, will be high but still there will be enough new laws put on the statute books to give the public utility managers daily headaches for months to come.

Out of these thousands of bills will emerge some new laws, which, I am optimistic enough to hope, will be reasonably sane, though they will enforce more rigid regulation and increase taxes.

Will Rogers, who cloaks common sense with humor, said of taxation that, "the legislators are figuring out schemes to slip up behind the taxpayer with a blackjack." The public utility, because it is not supposed to have many friends, is an attractive target for this deadly weapon. If all the tax measures which have been introduced become law there would be no further need to discuss public utility regulation or punishment, for the simple reason that soon there would be no property left to regulate.

The states of Nebraska, Iowa and Illinois have introduced bills to tax natural gas—in the last named state alone, five bills were submitted proposing taxes of 5c to 10c per thousand cubic feet. If any of these bills become law and are upheld constitutionally, the pipe lines may as well bid good-bye to their investment, as the backers of the legislation (the coal men) know and intend. The state of Texas, while demanding more markets for its natural gas, is at the same time considering a natural gas severance tax. If such legislation is approved, the pipe line companies will find themselves hamstrung by mounting taxes at both ends of the line.

Merchandising Bills

Measures prohibiting utilities from merchandising have been introduced in several states but none to date has been passed. So-called chain store bills have been offered, some carrying a license fee plus a tax on sales and others one or the other. The license fee goes up on a sliding scale according to the number of stores operated and many such measures introduced affect public utilities. A few legislatures are discussing a proposal to establish a valuation for rate making purposes the same as for taxation. They may not press this when they find so many tax bases higher than rate bases fixed by commissions.

A large part of this legislation has been waiting on passage of the Government's economic security bill. What the final outcome of that bill will be we can only guess. If laws providing for unemployment reserves are to be workable, they should differentiate between industries such as ours with its relatively stable employment conditions and those where the rate of labor turn-over is high. We might easily be called upon to carry

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Address before the Convention of the Natural Gas Department, Memphis, Tenn., May 6, 1935.

more than our share. It is something for you to think about in your home state.

These thousands of bills make up the attack on our industry along with other public utilities.

Ours is a practical business dealing with tangible and natural elements associated with the physical difficulties of converting a practically useless underground reserve into channels of useful service. Now we find ourselves in a political situation as well, which, to say the least, is foggy, and we must adapt ourselves to deal with abstract and intangible problems.

Service Not Attacked

However the nature of the difficulties besetting us may change, or difficulties different from those to which we are accustomed may add to our problems, the spirit in which we meet them will not. By courageously facing the facts and accepting the truth of every situation whether we like it or not, we should survive the storm.

In that spirit I propose to state as well as I can some thoughts on the questions to which we must find answers in order to survive the legislation threats on all fronts.

A great deal of thought should be given to the question of why the utilities should be in such ill repute and the basis of so many beliefs working to change them or destroy them as private possessions. Certainly, the conception of utility service as such can't be wrong. In actual fact, it isn't. In all the thousands of columns which the press has devoted to the utility business and in all the reports of investigators, you will find almost nothing that is critical of the management and operations of the physical properties of utility companies, nor of service to consumers. It must be, then, that the odium under which the industry rests in many people's minds is not due to faults in operation but arises from some other element of the utility industry.

A belief is prevalent that the utility companies have no competition and hence make too much money. You know that the natural gas business is competitive with every fuel known. All people used fuel before natural gas came into use. They will again if it should disappear.

If this attitude isn't on account of service and management and really should not be on account of the competitive feature of the business, you will at once think that the cause lies in the way the industry has handled its financing. In my opinion this is not the answer. The public is not greatly concerned in the disappointment of those who buy a certificate of stock for a dollar expecting to sell it soon for two dollars, when eventually the piece of paper is sold for less than a dollar and never was worth what they paid for it. Speculators masquerading as investors cannot palm their troubles off on the public by pleading that they were misled. We are all pretty tired and resentful of criticism of the industry as a whole because stock jobbing was done in our industry, as it was in all others. I think we are justly indignant with efforts to attack the utility cause from this standpoint.

Business Ethics

Speculative promotion and unsound financing should never have had a place in the development of utilities or any industry and that it did get into our industry is a cause for regret on our part, though it occurred in a far less degree than is popularly supposed. Most of these practices occurred during the period of frenzied finance when all business was involved. In all fairness, judgment of utilities should be tempered with the knowledge that the whole country, financial as well as political (if the financial plight of the country's subdivisions are an example) considered as fair business ethics many practices which we now recognize as wrong. However, this is water over the dam. Let us see to it that practices of this nature are eliminated. If we don't do the job it will be too bad for us, our business and the public we serve. Let us impress upon the public and its servants that we are cleaning our house.

While I repeat that financial abuse is not all that is back of the forces which have made the industry a major political issue, the foregoing is one of our serious problems and we must by action and word answer even such unsound criticism.

It is not concern over the plight of the unhappy investor which has prompted destructive legislation and ruinous taxation. Such financial abuses as we have developed have served only to emphasize the public's distrust of big business when it is combined with what the public calls privilege and monopoly.

Others believe that because some holding companies have been managed by selfish people, the holding company principle itself is wrong. These beliefs we know to be wrong. The question is, having the truth, and realizing that the public does not see it as we do, what does the gas industry propose to do about it?

Political Tie-up

No doubt some of our troubles may be laid at the door of politics—a large part, perhaps.

We cannot have Government without politics and though you would not think so from reading the papers, there are good politics as well as bad, and you will never find a Government without both kinds. A community is lucky when the better element predominates, but even your strictly honest office holder has to do things in the name of politics that he considers unsound. It is unfortunate that to call a man a politician is to brand him as somewhat different than the average man. Politics is a necessary calling; it is an honored profession. Unfortunately, the public mind recognizes only one kind of politician, which makes it necessary to explain here that when I say "political" I intend to convey no slur. I personally have found most politicians good citizens trying to do the right thing.

It is an axiom that a person is known by the company he keeps. The public utility company is by law associated with political government. It is intimately and continuously subjected to governmental regulation. You don't read much about government employees when they are well-behaved. The well-managed concern minding its own business and keeping out of politics except where contacts are required by law, does not make headlines. The less wholesome type of politician, the self-seeking at others' expense, is abnormal though plentiful, and by the nature of his activities he gets the lion's share of publicity.

The same situation exists in the utility business. Speculative promotion is in the news so much that it has become the public's conception of the typical utility. We know that most men in public life want to be fair toward our business while performing their duty as they see it to the consumers, their constituents. They do not know much about our business, but they want our counsel and the benefit of our experience and we should make every effort to give it to them freely and frankly. They must be made to appreciate that the standards of utility companies in the United States are not those caricatured by newspaper artists, just as we in our business appreciate that the typical politician is not the one that shouts himself to prominence.

Public Conceptions

We must make it possible for those in public life, for those with the responsibility of drafting laws or administering them, to get an honest understanding of the utility business. The office holder is beset by problems and confused ofttimes by the maze of legislation on which he is asked to pass an intelligent opinion. The man in politics deserves our frank advice. He must learn that we are not trying to make him think things are otherwise than they are. He must learn to trust us implicitly. His interest and ours really have a common objective, the advancement of public service. Politicians must be convinced that they may be friendly to public utilities and every effort made to dissipate the popular belief, wherever it may exist, that utilities are opposed to the public's best interests.

No matter how much we regret it, the public will view a gas company as private capital enjoying monopolistic privilege at the public's expense. Most people feel that God put the gas in the earth, that the community provided the markets which consume the gas at a profit to the producer, that the people own the streets through which the lines run; that, in short, here are common wealth and public property which somehow have been taken over for private profit. Out of this has grown the idea that we are capitalizing both business and profits, while operating stock jobbing as a sideline, out of something which does not belong to us but to the public.

In much the same way the excessive taxation can be explained by the fact that the public believes that the utilities bear a different relation to the public than other kinds of business do. In some quarters, taxation of gas companies is not regarded so much as a means of providing revenues as a restitution to the public of that which belongs to it.

It is remarkable how calmly the public accepts new tax impositions put on it through a utility service. This acceptance is in the same spirit as the willingness of the public to pay unreasonably high water, electric and gas rates, so long as they are charged by a municipal plant. In both instances the public feels a civic obligation to pay itself, indirectly, more than it would be willing to pay a private supplier, and it seldom measures the tax burden which they often carry to have municipal plants.

The key to the public's attitude, where utilities are involved, lies in the consciousness of public possession. Since this feeling will never down, it is only the part of wisdom to include it in our equations. The public loves the sound of "Government ownership of public utilities." Actually you will find that the public does not want its Government to own and operate the utilities.

New Understanding Needed

How, then, can we reconcile this feeling of the public's inherent right in the utilities which supply them with light, water and gas with its distrust of Government ownership and operation of these services? The answer lies, I think, in the idea of possession. The public wants to be in control without carrying the responsibility of the operation. It can satisfy this desire if it can delegate its authority to private companies to be exercised in the spirit of trusteeship.

Legal regulation is designed to answer this problem more or less completely, and its development upon sound principles may make for satisfactory relationship between the public utility and the public.

Political action in the last analysis is an attempt to crystallize this public demand. It is not enough for us to conduct our affairs so as to merit the good opinion of our customers if this is not recognized in the public's attitude towards the utilities. If popular thought about our business is wrong, we should recognize that as a problem to be corrected and we should set about enlightening the public. On the other hand, we should determine if popular thought is right in its condemnation of certain practices, and then, it is imperative that we correct those things which are wrong and which make trouble in the industry. To my mind, this is the only way we can continue to progress and to meet our new problems.

If the public and our business cannot arrive at a common viewpoint, and the burden is ours, there will be an end to our industry as a matter of private operation. We must find that common viewpoint and from it discuss our business in complete frankness, trustfulness and good faith. We must never forget that continuation of the natural gas business as private enterprise rests upon its acceptability to the public.

Briefly, you may take as my conclusion that I consider it to be the most important duty of public utility management in the next few years to sit down with representatives of Government and to create a mutual understanding of the problems involved in best expanding and maintaining public utility service.

Gas "Household Set"

The Portland Gas and Coke Company, Portland, Ore., is featuring a "household set" whereby customers can buy a gas refrigerator, modern gas range, automatic storage water heater and a thermostatically controlled furnace conversion burner for as little as 25 cents a day. Gas appliance dealers and the company are cooperating in the new plan.

Home owners who buy the four-appliance "household set" featured in the plan, may receive up to $100 for altering or renovizing kitchens, building a recreation room in the basement or insulating and weather-stripping the house. This is made possible through a cooperative arrangement with the federal housing administration. Customers who have the four appliances are served at a combination rate, getting their gas at lowest cost.

Thirteen to Graduate from Gas Engineering Course

THE eighth graduating class of technically trained gas engineers will complete the course of instruction in the gas engineering course at The Johns Hopkins University, Baltimore, Maryland, in June, 1935. Following graduation, the thirteen students in the class will be available for employment by companies who are in need of men thoroughly trained in the fundamentals of gas engineering. This makes a total of 57 graduates since 1926 when the first degree was awarded.

1935 Graduating Class.
Back row—G. R. Faustman, III, W. G. Schreitz, R. B. Barger, J. Mitchell, Jr., and H. H. Dinneen; Front row—A. R. T. Denues, J. G. Hayden, Jr., T. H. Walker, E. D. Crouch, and H. R. Cook; Insert—J. A. Eppler, G. M. Carter, Jr., R. B. Cobb

The curriculum offered in the four-year course includes inorganic, organic, and elements of physical chemistry, qualitative and quantitative analysis, along with basic courses in physics, mathematics, thermodynamics and other mechanical subjects, and the elements of direct current and alternating current practice, drawing, surveying, and strength of materials. The specialized courses of the senior year include such subjects as heat generation and transmission, fluid flow, evaporation, distillation, and air conditioning, as well as the production of water gas, producer gas, coal gas, oil gas, and natural gas, their purification, storage, distribution and utilization.

Students complete work of this character by designing a gas plant and distribution system for a small town, and developing the economic phases pertinent thereto. Associated problems relating to coals and oil fuels are also considered. These topics involve both chemical and engineering considerations, and the graduates are thus prepared for service in the many industries which require training in these general fields.

Those graduating in June and desiring employment are: Arthur R. T. Denues, Richard B. Barger, George M. Carter, Roger B. Cobb, Henry Robert Cook, Edward Donald Crouch, Henry Hayward Dinneen, John A. Eppler, George R. Faustman, III, James Grant Hayden, Jr., John Mitchell, Jr., Wm. Gordon Schreitz, and Talbott Hunt Walker.

Most of the students have obtained practical experience working for gas companies during summer vacations. Complete information concerning any of the graduates will be furnished on application to Dr. Wilbert J. Huff, professor of gas engineering, The Johns Hopkins University, Baltimore, Maryland.

Gas companies are urged to establish scholarships in the gas engineering course in order that the student ranks, depleted by graduation, will be filled in the fall of 1935. Scholarships are usually based upon an expenditure of $450 per year. This sum covers the cost of tuition, books and incidentals.

Warmer Weather Slows Gas Sales

SALES of manufactured gas reported for March amounted to 32,099,400,000 cubic feet, a decline of 4.6 per cent. Natural gas sales for the month were 93,342,600,000 cubic feet, an increase of 2.6 per cent.

Domestic uses of manufactured gas registered a sharp decline in March, dropping from 21,242,200,000 cubic feet in 1934 to 19,343,100,000 cubic feet during the current year, a loss of nearly 9 per cent. Domestic sales of natural gas also showed a decline amounting to nearly 5 per cent.

This was doubtless the result of temperatures considerably milder than normal prevalent throughout most sections of the country during the month. The number of degree days (the gas industry's standard measure of weather conditions) for a number of the larger cities served with manufactured gas averaged only 687 in March, 1935, or 19 per cent less than the normal of 848 for this month. For a group of the larger cities served with natural gas the number of degree days in March 1935, averaged only 561, or 7.4 per cent less than the 606 degree days which is normal for these cities in March.

Revenues of the manufactured and natural gas industry aggregated $66,261,700 in March, 1935, as compared with $68,187,600 in March, 1934, a decline of 2.8 per cent.

The manufactured gas industry reported revenues of $32,227,200 for the month, a decline of 5.8 per cent over the corresponding month a year ago, while revenues of the natural gas industry totalled $34,034,500, or practically the same as last year.

For the three months ending March 31, manufactured and natural gas revenues aggregated $208,716,300, an increase of 1.6 per cent over the first quarter of 1934. Revenues from domestic customers were unchanged for the quarter. The number of gas ranges sold during this interval increased 23 per cent.

Hartford Executive Dies

E. E. Eysenbach

ERNEST E. EYSENBACH, president and general manager of the Hartford Gas Company, Hartford, Conn., and an outstanding figure in the gas industry for nearly forty years, died at his home, April 28.

Mr. Eysenbach had been with the Hartford Gas Company since 1916 when he was appointed manager. He was elected a vice-president in 1923 and president in 1927, succeeding the late Judge Edward B. Bennett.

He took the chemical engineering course at the Ohio State University and began his work in the gas industry at Columbus, Ohio. While he was with the Columbus Gas Company, he and Henry L. Doherty, now president of Cities Service Company, worked together as cub engineers.

From Columbus Mr. Eysenbach went to St. Paul, Minn. In 1905 he became manager of the Binghamton Gas Company in New York. In 1911, he was appointed manager of the San Antonio Gas, Electric and Traction Company of San Antonio. From there he went to Hartford in 1916.

Mr. Eysenbach was a member of the American Gas Association; the New England Gas Association, of which he had served as a director; the New England Guild of Gas Managers; the Society of Gas Lighting, and the Connecticut Gas Association.

The sooner our people understand that this continent was civilized by a self-reliant majority, that this government was founded by a self-reliant majority, that the system of private ownership of property and private operation of business, free from competition by the national government, is bedded in our lives and habits and is the only status contemplated by the Constitution, then the sooner can all citizens, including the unemployed, bend their energies toward a confident recovery. In so doing they will progress more surely toward adequate and discriminating relief of dependent unemployed as a recognized by-product of social organization but not as the principal aim or function of government in any western civilization.—FORNEY JOHNSTON.

King's Jubilee House Features Gas Appliances

ONE of the most interesting features of the Silver Jubilee celebrations last month during which all Britain celebrated the 25th anniversary of the ascension of King George to the throne, was the gift of an "ideal" middle class home to the King by the Royal Warrant Holders' Association. Into the house, in the building and furnishing of which many manufacturers and commercial firms participated, went the best products, services and the ablest craftsmanship of which the British Empire was capable. Gas and coke are being used for cooking, water heating, room warming and central heating.

Full size replica of the King's house featured at the Ideal Home Exhibition at Olympia

Prize-Winning Model

The "King's House" was one of 3 prize-winning models, and was selected by the King as being the most practical. It measures 75 x 50 feet, and includes a drawing room, dining room, small study, loggia, 3 main bedrooms, dressing room, 2 maid's bedrooms, 3 baths, kitchen, maid's sitting room, wine cellar, garage and chauffeur's quarters. It was designed to show what modern luxuries can now be included in a medium-priced home, and is expected to set a standard for the small country house of the future.

Of special interest to the gas industry is the kitchen which is planned in accordance with modern hygienic and labor-saving principles. Near the tradesmen's entrance is a sliding door admitting to a cool larder, while on the opposite side there is a large store cabinet and refrigerator section which is conveniently built up from the floor and has the space above enclosed.

Gas range in the King's kitchen

In order to obtain the maximum amount of light, the working table is placed near the windows. Under the table are cupboards and drawers for the storage of kitchen utensils. A teak chopping board is concealed under the metal top. On the opposite side of the kitchen are the gas range, the hot plate and, conveniently at hand, a small hardwood folding table and cupboards for pots and pans. The wash-up is entirely self-contained and consists of a double sink with cupboard space under, the whole being totally enclosed. Adjoining are china cupboards for everyday kitchen crockery.

The gas range, designed by Parkinson & Company, is built on a solid pedestal so that no dust can gather underneath and all piping is hidden. It is carried out in streamline style, with no corners to collect dirt, so that it can be fitted flush with the other pieces of kitchen equipment. The

finish is of Jubilee blue enamel and stainless steel—the taps and oven handles have been made in black bakelite.

Other features of the range are a large oven, with a twin burner grilling chamber built on the top, and a boiling burner hot plate over the grilling chamber. The hot plate burners are mounted in enamel steel bowls with loose top bars, and the entire hot plate is enclosed, with the result that any spillage is trapped in the bowls, which are easily removed for cleaning. The two-burner oven is controlled by a thermostat of unusual design, operated by a small red bakelite knob, the numbers being visible through a small circular window. Drop doors are fitted with carefully balanced spring returns. Each burner is fitted with a locking control tap and automatic ignition. A governor is fitted to the gas supply pipe, maintaining a constant pressure of gas to the cooker.

Gas and Coke for House Heating

The gas-heated cupboard for heating plates and dishes can also be used as a slow oven if there is extra cooking to do. It is of bright stainless steel with folding doors that fit flush with the front. Inside there is a rack and two perforated shelves for holding the dishes, which are heated by two gas burners, which can be taken out for cleaning. The whole fitting is insulated against loss of heat, except for the top. This has been purposely left so that it can be used as a hot plate.

A new type of coke boiler is being used for centrally heating the house. The heating can be regulated by a special control fitted in the living room. Coke has also been chosen for water heating although two gas-fired boilers have been fitted to take charge of the water heating during the hot weather. In the summer, the coke boiler can be shut down and the water heating done by the gas boilers which work automatically. All of the boilers are enclosed in insulating steel jackets, finished in Jubilee blue enamel, while the doors are carried out in black enamel with chromium plated fittings.

A coke fire lit by gas is used in the drawing room. Five gas fires have been installed in the bedrooms and other parts of the house. Each of these gas fires is built into the wall as a panel a foot or so above the floor level. No hearth is necessary. A metal finish of wrought bronze has been chosen for the fire, which is set in an attractive surrounding of Ancaster stone.

Coke and gas are also being used in the chauffeur's quarters. A gas cooker is fitted in the kitchen and the bedroom is warmed by a panel fire.

A gas-heated drying cupboard is fitted in the laundry. It is made of rust resisting steel, enamelled outside, and is mounted on short legs of steel. The doors are flush with the front and the controls of black bakelite are concealed by a close fitting panel, giving the cupboard a streamlined effect. For holding the clothes there are four sets of hangers which are made in rustless steel tubing and can be swung out so that clothes can be put in and taken out easily. A special wire mesh protects the clothes from touching the bottom plate that covers the gas burners,—preventing any possibility of an accidental scorching. The whole cabinet stands just over six feet high and is three feet in width.

Among the first big industrial shows to tie itself into the Jubilee theme was the *Daily Mail* Ideal Home Exhibition which opened at Olympia the last week in March. A full size replica of the "King's House" was a feature of this exhibit. Also included was "Jubilee Village," a group of 7 well-planned small houses of the latest design with the most modern kitchens and plumbing. Nothing in the housing exhibit attracted wider attention than the modernized kitchens in which gas played a conspicuous part. In competition for the best plan for a modern labor-saving kitchen, conducted by the British Commercial Gas Association, a man won the $5000 prize in a field including 20,000 women entrants.

The new interest in housing has greatly stimulated business and the kitchenette vogue has encouraged manufacturers to develop compact kitchen units even for the larger homes.

Bureau of Mines To Expand Activities

AN appropriation of $1,970,311 to the Bureau of Mines for the new fiscal year beginning July 1 is made in the Interior Department supply bill recently signed by the President. This amount includes a net increase of approximately $600,000 which will permit the Bureau to resume many important services and to undertake new work.

The Bureau will expand its studies on low-temperature carbonization of coal in the effort to find a solution for the smokeless-fuel problem, thus preventing waste of fuel value in the soot and tar composing the smoke and avoiding damage to buildings, clothing, etc. Efforts will be made to accelerate the development by industry of commercial carbonizing processes and to determine the composition of by-product oils and tars and develop commercial uses for them.

A portion of the increased funds will be used to continue studies to provide for a suitable classification of different American coals and to study their properties.

Broken Contract Proves Costly to Municipal Plant

WRITTEN across the records of the United States district court at Fort Worth, Texas, May 11, stood the verdict of a quick-acting jury, deciding that the city of Chanute, Kans., a city priding itself on municipal ownership of utilities, had acted wrongfully and in breach of lawful contract in the matter of obtaining a gas supply for its residents.

The jury found for two gas companies, the Oklahoma Natural Gas Company and the Reserve Gas Corporation, and ordered them reimbursed to the extent of $10,000 on each of two contracts which the companies charged were broken by Chanute. The jury deliberated two hours.

The plaintiff companies charged that in 1924 the Chanute Pipe Line Company and the Southern Kansas Gas Company entered into contracts with the city to furnish gas at 20 and 25 cents at the city gate. Later these contracts were taken over by the Oklahoma Natural Gas Company, which supplied Chanute with gas until 1929. In that year the plaintiffs alleged that the city began to contract with other producers over the protests of the plaintiff company. In 1932 the Reserve Gas Corporation, a subsidiary of the United Gas System, Inc., leased all the rights under the contracts and therefore was made a co-plaintiff in the suit.

On May 13 a small reduction in the amount of the judgment was made in compromise and the judgment thus reduced was paid to the gas companies by the city. There will be no appeal from the decision.

Service Efficiency of Automatic Storage Water Heaters

By W. R. TELLER

American Gas Association Testing Laboratory

IT has long been recognized that the overall efficiency with which an automatic storage water heater might deliver hot water in the field was a rather complex function of certain performance as well as physical characteristics of the appliance, and depended to a large extent on the kind of usage imposed on it. It was known, for example, that high thermal or heating-up efficiency afforded no assurance that an automatic storage heater would produce hot water as economically under certain conditions of normal service as other heaters with a lower thermal efficiency. Likewise, heaters with a standby loss higher than the average have demonstrated the ability to produce hot water with satisfactory economy. It followed, therefore, that merely determining the heating-up efficiency and standby loss of an automatic storage heater provided no absolute index of its ability to deliver water to the consumer as cheaply as some other size heater with similar or different efficiency and standby loss characteristics.

Efficiency Tests

Inasmuch as the cost of hot water service is an important item in providing satisfactory water heater performance, there existed an apparent need for developing some method whereby the characteristics of an automatic storage heater, as determined by laboratory tests, might be related definitely to overall or service efficiency. The interested requirements committees of the American Gas Association recognized this need several years ago and assigned the problem to the Testing Laboratory for investigation. Some thought was given to applying simulated service efficiency tests to automatic storage heaters at the Testing Laboratory and establishing reasonable performance limits for approval purposes. The nature of such tests is common knowledge and needs no description here. They do provide an excellent test, but other phases of the Testing Laboratory's functions rendered adoption of such tests inadvisable and from one standpoint, impracticable.

It was finally decided that, if possible, a fundamental relationship should be developed between the overall efficiency which any type of automatic storage water heater might be expected to yield in service and those performance characteristics of the heater which might be readily determined by Laboratory tests. Such a relationship was developed by the Testing Laboratory in collaboration with a special subcommittee of the A.S.A. Sectional Committee, Project Z21, A.G.A. Approval Requirements Committee, headed by E. R. Weaver of the National Bureau of Standards, and with the Subcommittee on Approval Requirements for Gas Water Heaters, headed by E. J. Horton of the Ruud Manufacturing Company.

From this work a performance requirement* was adopted and incorporated in the approval standards. It has proven to be an excellent method of comparing the overall efficiency of automatic storage gas water heaters. Furthermore, the basic principles involved have been successfully employed by utility engineers and manufacturers in the solution of problems relating to domestic utilization of water heaters.

Formula Development

The purpose of this article is to present the essentials of the above mentioned investigation so that the fundamental relationships which have proven to be useful may be available to anyone interested in such matters. The first step consisted of the development of a formula for the theoretical overall or service efficiency of an automatic storage water heater, having as variables the input rate, tank capacity, uncorrected thermal or "heating-up" efficiency, and standby loss of the heater under consideration, in addition to the volume of hot water to be drawn daily. The derivation of this formula is given in detail inasmuch as a complete understanding of the principles involved seems

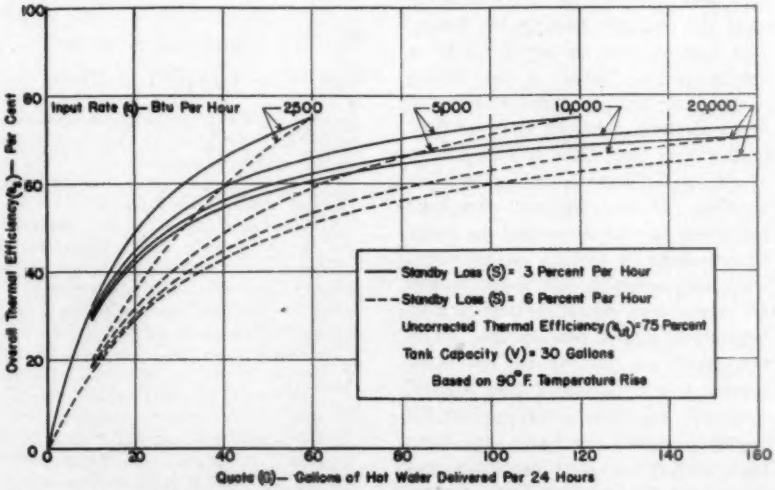
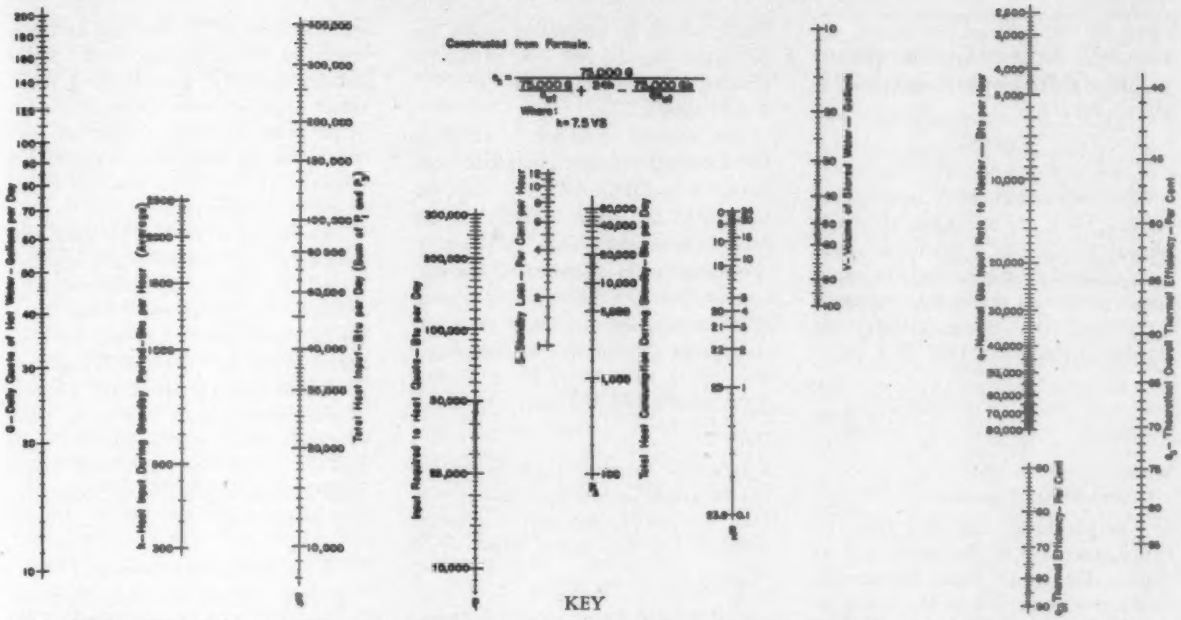


Figure 1—Effect of daily hot water delivery, input rate, and standby loss on overall thermal efficiencies of automatic storage water heaters

* American Standard Approval Requirements for Gas Water Heaters, Part II, Section 17, Heat Required to Supply Daily Quota of Hot Water.



1. If value for "h" is unknown connect "V," "S" and "h" scales, marking intersection on "h."
2. Connect "G," "e_{ut}" and "P_1" scales, marking intersection on "P_1."
3. Connect point on "P_1" to "q" scale, noting intersection with "P_2" in reference to left hand scale.
4. Connect corresponding value on right hand scale of "P_2" to "h" scale, marking intersection on "P_3" scale.
5. Connect point on "P_4" corresponding to sum of intersections on "P_1" and "P_3" scales to "G" scale, noting intersection on "e_a" scale.

Figure 2—Alignment chart for determining overall efficiencies of automatic storage water heaters

necessary for its intelligent application.

The number of gallons of hot water to be drawn from a water heater during each 24-hour period will be denoted as "G." Assuming the temperature rise of the water drawn to be 90 degrees Fahrenheit, the heat output from the appliance during a 24-hour period will be equal to:

$$90 \times 8.33 \times G, \text{ or } 750\ G \text{ B.t.u. per day} \qquad (1)$$

The heat input required to deliver this volume of hot water is, of course, a function of the thermal efficiency of the appliance under consideration. The thermal or "heating-up" efficiency "e_{ut}" as determined by the tests outlined in the American Standard Approval Requirements for Gas Water Heaters Z21.10-1933 may be used for this purpose. The input necessary to deliver the daily quota of hot water may then be expressed as follows:

$$\frac{750\ G}{e_{ut}} \times 100, \text{ or } \frac{75000\ G}{e_{ut}} \text{ B.t.u. per day} \qquad (2)$$

The time required by the appliance to impart this quantity of heat to water in the storage vessel is represented by the following equation:

$$\frac{75000\ G}{q\ e_{ut}} \text{ hours} \qquad (3)$$

Where:

q = manufacturer's input rating to heater, B.t.u. per hour.

It should be noted that heaters equipped with graduating type thermostats would actually require a longer period of time to heat a given daily quota than is indicated by equation "3," since the average input rate during the heating-up efficiency test would be something less than the manufacturer's input rate. Likewise, in actual service the input rate varies between by-pass and full-on depending on amount and frequency of draw as well as on thermostatic characteristics. Consequently, if the quota is assumed at some arbitrary value, more accurate results would be secured for heaters with graduating type thermostats by using in equation "3" the average heating-up rate as found during the thermal efficiency tests instead of the manufacturer's rating. However, if the quota is computed in accordance with equation "7," which includes as a variable the manufacturer's input rate, a corresponding value for input rate should also be used in equation "3" for heaters with graduating type thermostats.

Returning to the derivation, a heater will be on standby during that portion of each twenty-four hour period indicated by the following equation:

$$\left(24 - \frac{75000\ G}{q\ e_{ut}}\right) \text{ hours} \qquad (4)$$

During standby tests as specified in the water heater approval requirements, the total heat input during the test period* when no water is drawn, is observed. This quantity, expressed as a percentage of the heat content of the stored water above room temperature, is known as the standby loss, or

$$S = \frac{H}{8.33 \times 90 \times V \times L} \times 100$$

Where:

S = standby loss, per cent per hour
H = total gas consumption, B.t.u.
V = capacity of storage vessel, gallons
L = duration of standby period, hours

However, only the total gas consumption as metered during the test standby period and expressed on an hourly basis, is necessary for the derivation. Letting this value be indi-

*At least 24 hours' duration and not less than a sufficient time period to permit two complete thermostatic cycles.

cated by "h" (B.t.u. per hour), the total heat input during the standby period as determined in equation (4) above, becomes,

$$\left(24 - \frac{75000\ G}{q\ e_{ut}}\right) h \text{ B.t.u.} \quad (5)$$

The theoretical or overall efficiency, e_s, will be, of course, the daily output (equation "1") of the appliance divided by the sum of the input required to heat the quota (equation "2") and the input during the standby period (equation "5"), or,

$$e_s = \frac{75000\ G}{\frac{75000\ G}{e_{ut}} + \left(24 - \frac{75000\ G}{q\ e_{ut}}\right) h} \text{ per cent} \quad (6)$$

Where:

$h = 7.5\ VS$ B.t.u. per hour

It was previously assumed that the temperature rise of the water was 90 degrees Fahrenheit, since the standby loss test as specified in the approval standards is conducted at substantially this temperature and since it is reached as an approximate limit during the thermal efficiency test. If overall efficiency results are desired for some other differential between room and stored water temperature, the expression 833 tG, where "t" is the temperature rise in degrees Fahrenheit, may be substituted for the expression 75000 G in equation "6."

Influence of Variables

It will be appreciated that this derivation while affording a good approximation of overall efficiencies, is not by any means free from influence by the many variables present in actual installation.

It is apparent from inspection of equation "6" that the only large variable affecting the theoretical overall efficiency of any given automatic storage water heater is the amount of water delivered during a 24-hour period. If, for example, no water is drawn from a heater during such a period, the output is nil, and strictly speaking the efficiency of the heater is zero. The other extreme is found when the amount of hot water delivered daily is equivalent to the recovery capacity of the appliance or, in other words, to the maximum volume of hot water which could be delivered if the heater were operated at its full input rating for the entire day. In this event, the overall efficiency would be equivalent to the uncorrected thermal efficiency of the appliance, or from equation "6" "e_s" would equal "e_{ut}."

The overall efficiency of an automatic storage heater, therefore, may vary, depending entirely on the volume of hot water delivered, from zero to some maximum value corresponding to its uncorrected thermal efficiency. It is evident, then, that an ideal installation condition from the standpoint of economy would be one where the recovery capacity of the heater would be just sufficient to provide the daily hot water requirements. On the other hand, it is manifestly impossible to make such an installation, since the hot water requirements of any family are not only unpredictable, but vary from hour to hour and from day to day. Good judgment would dictate that capacity of a heater be at least large enough to meet the maximum demands that might possibly be made on it at any time.

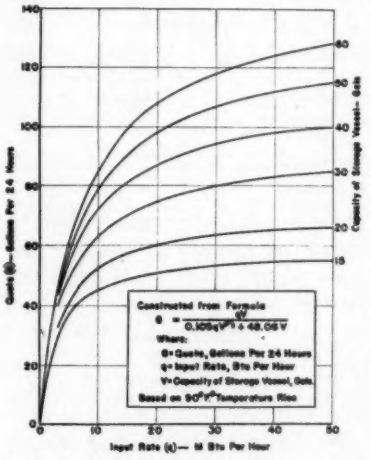


Figure 3—Relation of daily quota to input rate for water heaters having storage vessels of various capacities

The curves of Figure 1 have been prepared in order to portray the effect of the magnitude of daily hot water delivery, standby loss, and input rate on the theoretical overall or service efficiency of an automatic storage gas water heater. For this purpose, it was assumed that the appliance yielded an uncorrected thermal efficiency of 75 per cent and was equipped with a storage vessel of 30 gallons capacity. Substituting these values together with various volumes of hot water delivery in equation "6," the overall efficiency was computed for several input rates and standby losses as shown in Figure 1.

The trends indicated by these hypothetical cases are generally applicable to all types of automatic storage heaters. A characteristic curve similar to these may be drawn for any heater, provided its physical and performance characteristics are known. The alignment chart of Figure 2 was prepared from which data for such curves might be obtained more readily than is possible by computation of equation "6."

Performance Index

It is of course essential, when approximating operating efficiencies which may be expected in the field, to know within limits the amount of hot water that will be drawn daily. The difficulty of so doing has been previously mentioned. It should also be brought out that due to line losses the overall efficiency of a domestic hot water system will always be something less than the overall efficiency of the heater itself. Determining theoretical overall efficiencies in accordance with equation "6" or the nomograph of Figure 2 is, therefore, undoubtedly more of value as a comparison between one heater and another under one or more conditions of hot water draw, than as an absolute index of field performance.

In making such comparisons, the daily volume of hot water draw employed may be selected on the basis of field experience and knowledge of actual installation under consideration or several quotas may be chosen so as to encompass normal usage. It will be immediately apparent by again referring to Figure 1, if two heaters are considered having similar characteristics except that their input rates differ considerably, the heater with the lower rating will have a higher indicated overall efficiency for the same daily hot water requirements. This does not imply, however, that high input rate or quick recovery heaters may not be preferred for many installations, especially

those where operating costs are not accorded prime importance but are subordinated to demands for flexible or heavy service. In any event, a quota or daily volume of hot water delivered, if a reasonable approximation of the demands of a consumer, will provide in conjunction with the equations presented herein, a fair comparison between automatic storage heaters of all types and sizes.

In order to provide comparable conditions for various types of automatic storage water heaters during conduct of approval tests, the requirement committees were confronted with the necessity of selecting reasonable daily draws for application of the overall efficiency requirement. It was recognized that this problem was an extremely controversial one. However, on the basis of considerable practical experience the following empirical equation was developed:

$$G = \frac{qV}{0.105\, q\, V^{1/3} + 48.06\, V} \text{ gallons per day} \quad (7)$$

It will be noted that quotas determined by this equation are a function entirely of the input rate to, and the tank capacity of, the heater under consideration. A group of curves was constructed from equation "7" as shown in Figure 3.

While this paper has been confined entirely to a discussion of performance characteristics of automatic storage water heaters, it is not intended to minimize the peculiar and valuable advantages of other types such as instantaneous, or circulating tank heaters. Moreover, there is no intention of attempting to evaluate the performance of the several popular classifications of automatic storage heaters in terms of ultimate consumer satisfaction. The widespread acceptance of "slow-, medium-, quick-recovery," and "conversion slow-recovery" automatic storage heaters, as well as of the several other types, is ample proof that each has a definite place in the domestic water heating field.

Effective Date of Relief Valve Ruling Changed to January 1, 1936

An article by F. R. Wright on "Relief Valves Become Mandatory on All Approved Water Heaters" published in the May 1935 issue of this magazine stated that on or before July 1, 1935, all approved storage type gas water heaters must be equipped with means to prevent excessive water temperatures and pressures if approval on them was to be continued after that date. Subsequent to the time the article was prepared and submitted for publication, the A. G. A. Approval Requirements Committee reconsidered the matter (meeting April 19-20, 1935) and changed the effective date of its previous ruling from July 1, 1935 to January 1, 1936. This was done in order to allow water heater manufacturers more time in which to equip their appliances with relief valves, and further, to permit manufacturers of relief and automatic gas shut-off valves an opportunity to have their accessories tested and certified under the recently completed American Standard Listing Requirements for Relief and Automatic Gas Shut-Off Valves for Use on Water Heating Systems.

In accordance with the above, therefore, on and after January 1, 1936, all storage type gas water heaters, regardless of the date when they were originally approved, must be equipped with means to prevent excessive water temperatures and pressures in the storage vessel, if approval is to be continued on them after that date.

N. Y.-N. E. Regional Sales Conference

THE 1935 New York-New England Regional Gas Sales Conference will be held June 27-29 at the Griswold Hotel, New London, Conn. The hotel, under new management, has assured the sales council that entirely satisfactory service and facilities will be available to the conference which is expected to attract a large gathering of sales managers. R. L. Fletcher, of the Providence Gas Company, Providence, R. I., is chairman of the council.

A home service conference is being favored and will probably be held Friday afternoon, June 28, as in the preceding year. Golf and tennis tournaments are being arranged by F. D. Cadwallader and R. J. Rutherford, respectively.

The tentative program includes the following topics: Economics of the Gas Industry, Every Employee a Business Builder, Credit Problems in Rentals and Long Term Sales, Commercial Cooking Developments, Progress in Kitchen Heating with Gas, House Heating Prospects, Dealer Cooperation, Market Research, On the Refrigeration Firing Line, Maintenance Contracts on Gas Refrigeration, Specialty Merchandising, Increasing Floor Traffic, Symposium on Water Heating, Kitchen Planning, and Summer Air Conditioning.

Speakers who have accepted to date are: A. M. Beebee, Rochester Gas & Electric Corp.; J. J. Quinn, Boston Consolidated Gas Co.; James Scott, Surface Combustion Corp.; R. H. Knowlton, Connecticut Light & Power Co.; W. F. Hope, Newport Gas Light Co.; and Hugh Cuthrell, The Brooklyn Union Gas Co.

M. N. Bailey Promoted

M. N. Bailey

THE American Meter Company has announced the appointment of M. N. Bailey to the position of assistant manager of its factory and sales office at 1513 Race Street, Philadelphia.

Mr. Bailey joined the John J. Griffin Company on July 1, 1915 and had been sales representative for that factory and subsequently for American Meter Company as a whole.

He resides in Royersford, Pennsylvania, where he is active in the Chamber of Commerce, formerly as a director and now as state counselor of this local organization. He is a member of the American Gas Association, Pennsylvania Gas Association, Southern Gas Association, New Jersey Gas Association and Maryland Utilities Association. He has served on various committees and is at present a member of Council of the Pennsylvania Gas Association and chairman of the Entertainment Committee.

An Expert Speaks

WILLIAM C. BOND, Superintendent, Buildings and Grounds, Library of Congress, recently stated, when discussing air conditioning for the preservation of books:

"No definite temperature is indicated in considering air conditioning for the preservation of books. It is, however, necessary to maintain the relative humidity within reasonable range, possibly 45% to 55%."

The recently introduced gas humidifiers produce just that kind of air conditioning, namely, emphasis on proper humidity and slight supplementary cooling.

In view of this fact libraries throughout the country should prove good prospects for gas summer air conditioning.

150 Win High Sales Awards

J. W. West, Jr., secretary of the A. G. A. Refrigeration committee, shown with special April awards which went to gas company salesmen because of their high sales records in the nation-wide campaign

ONE hundred and fifty gas salesmen, members of the sales forces of gas utilities in all parts of the country, won awards for high sales in April, the first month of the "second good old-fashioned sales contest," sponsored by the American Gas Association Refrigeration Committee, John J. Quinn, chairman of the committee, has announced. The campaign is also known as the "Prosperity Cup" contest.

The gaining of a high place in company sales by twenty-one utilities was also announced by Mr. Quinn who stated that the campaign is not only being conducted on a scale larger than any other drive sponsored by the committee, but that results up-to-date indicate that the contest will be the most successful in the committee's history.

Nearly 9,000,000 meters, or about two-thirds of all domestic meters in the United States, are registered in the contest, Mr. Quinn announced. The sales forces of the hundreds of utilities competing for both company awards and the awards open to individual salesmen are highly optimistic over the outcome of the campaign which will continue throughout June.

Under the terms of the contest, seven silver trophies which give the campaign its name, plus other valuable awards, will go to companies who are ahead when the campaign is concluded.

A feature of this year's campaign is the granting of monthly awards to individual salesmen. At the end of the campaign more than 500 salesmen will have received such awards.

The campaign is carried on in collaboration with the manufacturers of Electrolux refrigerators which have the endorsement of the gas industry and are marketed almost exclusively through 2,000 or more American gas utilities.

A list of those who received individual awards follows:

Division A

Victor Soffar, Harold E. Biederman, Walter S. Ostrander, Jr., William L. Wilson, Jerome P. Riordan, Lovat F. Cornwell, Arthur J. Lynch, Raymond Haagstad, Leon A. Solvey, James E. Morrow, Sidney M. Lubasch, James Philip Ollivier, Jay Elwood, Peter J. McArdle, Jayson M. Brice, of The Brooklyn Union Gas Company.

J. Boyleston and O. Gerard, of the Consolidated Gas Co. of New York; Frederick A. Scheffler, Kings Appliance Company, Brooklyn, N. Y.; H. D. Trogdon, Southern California Gas Co., Los Angeles; and G. Y. Belcher, The Philadelphia Gas Works Company.

Division B

Raymond Rinaldi, Edward F. Myles, William S. Whitworth, Sidney McMillen, Stanley Matthews, and Richard H. Anderson, of the Providence (R. I.) Gas Company; Chester T. Norback, William S. Bodwell, Anna Greenlay, Richard H. Butler, John J. Mullen and Madeline G. Benziger, of the New Haven (Conn.) Gas Light Company.

N. J. Brochtrup, C. M. Birkhold, J. A. Hansel and N. W. Simons, all of the Columbus (Ohio) Gas and Fuel Company; A. J. Tremann and R. Haley, Minneapolis Gas Light Company; J. H. Brehm, Elizabethtown Consolidated Gas Company, Elizabeth, N. J.; A. Purcell, Public Service Electric & Gas Company, Jersey City, N. J.; and Louis Aschenbach, Milwaukee Gas Light Company.

Division C

W. M. Monahan, S. J. Isabel, John P. Grimm and J. E. Wilson, of the Fayette County Gas Company, Brownsville, Pa.; William Dunfey, of the Lowell (Mass.) Gas Company; E. A. Moran and T. J. McAndrew, of the Scranton-Spring Brook Water Service Company, Scranton, Pa.; Charles E. Yowler, Harrisburg (Pa.) Gas Company; Paul Cellier, N. Y. & Richmond Gas Company, Staten Island, N. Y.; T. J. Kenny, Westchester Lighting Company, Yonkers, N. Y.; Morris Lloyd, Binghamton (N. Y.) Gas Works; C. E. Bayne, J. G. Abernathy, and H. C. Bradshaw, Little Rock (Ark.) Gas & Fuel Company; Lloyd J. Shaw, Consumers Power Company, Pontiac, Mich.; Joseph R. Lane and Harold C. Marsh of the Natural Gas Company of West Virginia (Wheeling); J. E. Brophy, Public Service Electric & Gas Company, Hackensack, N. J.; L. C. O'Neil and S. J. Cooper, Public Service Electric & Gas Company, Englewood, N. J.

Division D

E. H. Enochs, J. D. Hill, T. M. McKenzie, J. L. Hill, of the Arkansas-Louisiana Gas Company, Shreveport, La.; Sam A. Rosen, Harold P. Cox, F. C. Koble, all of the Manufacturers Light & Heat Co., Bellevue, Pa.; Ernest W. Garrett, Manufacturers Light & Heat Company, Washington, Pa.; Sterling E. Evans, W. R. Bales, F. R. McDaniel, of the Ohio Fuel Gas Co., Newark, Ohio; D. W. Whittington, Ohio Fuel Gas Co., Springfield, Ohio; W. N. Wranischar, Harry Kloppenburg and U. L. Hinds, of the Central Illinois Light Company, Springfield, Ill.; James A. Beaudry, Gilbert M. Cox and Douglas S. Raeside, of the Portland (Me.) Gas Light Company; E. A. Brown, H. W. Crum and H. I. Conham of the Union Gas System, Inc., Independence, Kansas; Lionel J. Gendron, Manchester (N. H.) Gas Company; F. S. Parmenter, Southern Counties Gas Company, Monrovia, Calif.; R. B. Bell, Southern Counties Gas Company, San Pedro, Calif.; and E. G. Sauerwein, Natural Gas Company of West Virginia, Salem, Ohio.

Division E

H. Stuart Johnston, A. H. Phelps, H. G. Crain, H. F. Van Meerbeke, H. F. Wal-

ters and J. A. Stevens, of the Florida Public Service Company, Orlando, Fla.; E. H. Pierce and C. A. Prophit, Natural Gas Company, Monroe, La.; Edwin Bardsley, Lewiston (Me.) Gas Light Co.; C. L. Strean and K. B. Lord, Ohio Fuel Gas Company, Elyria, Ohio; L. K. Friedenberg and L. A. Arntz, Ohio Fuel Gas Company, Mansfield, Ohio; G. J. Crotzer and J. F. Doven, Gas & Electric Appliance Company, Zanesville, Ohio; H. P. Burgess and J. J. Stanley, Roanoke (Va.) Gas Light Company; Edward J. Fie and Oren C. Stewart, Hornell (N. Y.) Gas Light Company; Donald Fantz and C. M. Hilands, Southern Counties Gas Company, Whittier, Calif.; John A. Pauls and R. A. Williams, Manufacturers Light and Heat Company, Steubenville, Ohio; Walter F. Lyon, Connecticut Light & Power Co., Norwalk, Conn.; J. H. Burford, Public Service Electric and Gas Co., Summit, N. J.; Robert J. Butterworth, Webster & Southbridge Gas & Electric Co., Southbridge, Mass.

Division F

O. M. Padgett and R. L. Simms, Tyler (Tex.) Gas Service Co.; J. T. Hogan, Fred Graves and E. V. Bowyer, Lynchburg (Va.) Gas Co.; John Morrell, Gas & Electric Appliance Co., Jackson, Ohio; Harry Metier, Gas & Electric Appliance Co., Chillicothe, Ohio; N. O. Thomas, United Gas System, Marshall, Texas; D. C. Merithew, Keystone Gas Co., Olean, N. Y.; R. R. Kirkey, Central Illinois Electric & Gas Co., Freeport, Ill.; H. G. Arndt, Natural Gas Corporation of California, Taft, Calif.; Roy Black, Washington County Gas Company, Johnson City, Tenn.; Richard Semler, Waynesboro, (Pa.) Gas Company; R. V. Lockwood, Consumers Power Co., Lapeer, Mich.; W. E. McClurg, Ohio Fuel Gas Company, Ashland, Ohio; V. L. Mayclin, Fort Dodge (Iowa) Gas & Electric Co.; E. E. Leva, Georgia Public Utilities Co., Rome, Ga.; Leo M. Mayer, Montana-Dakota Power Co., Rapid City, S. D.; and William Fernandez, Porto Rico Gas & Coke Co., San Juan, P. R.; L. C. Gerbart, United Gas System, Opelousas, La.

Division G

J. A. Cutts, Jr., and J. G. Nunnally, Broad River Power Co., Florence, S. C.; Herbert James, Gas & Electric Appliance Co., Caldwell, Ohio; C. E. Bell, Gas & Electric Appliance Co., New Concord, Ohio; A. A. Simpson, Gas & Electric Appliance Co., Barnesville, Ohio; Arthur L. Lindblad and C. D. Halvorson, Willmar Gas Company, Minneapolis, Minn.; H. B. Stratton, Texas Natural Gas Utilities Co., Beeville, Texas; C. P. Garber, Virginia Gas Distributing Corp., Waynesboro, Va.; John S. Mahoney, Spencer (Mass.) Gas Corp.; Tom F. Parker, Arkansas-Louisiana Gas Company, Gilmar, Texas; J. F. Whitney, Sumter Gas & Power Co., Sumter, S. C.; Robert W. Mingle, Pendleton (Ind.) Natural Gas Company; Lee Dockery, Community Public Service Company, Graham, Texas; P. M. Ferguson, Northwestern Illinois Utilities, Savanna, Ill.; A. P. Norris, New York Central Electric Corp., Penn Yan, N. Y.; R. B. Canfield, Community Public Service Co., Ranger, Texas; Edward Wilson, Princeton (Ind.) Utilities Co.; L. C. Bradburn, Texas Gas Utilities Co., Carrizo Springs, Texas; J. L. C. Black, Anderson (S. C.) Gas and Utilities Company.

Companies which stood first in each of their respective divisions for April are: The Philadelphia Gas Works Company, Division A; Providence (R. I.) Gas Company, Division B; Fayette County Gas Company (District No. 6), Brownsville, Pa., Division C; Arkansas-Louisiana Gas Company, Division D; Florida Public Service Company, Orlando, Fla., Division E; Tyler Gas Service Company, Tyler, Texas, Division F; and the Broad River Power Company, Florence, S. C., Division G.

Companies which stood second are: The Brooklyn Union Gas Company, Division A; Columbus Gas & Fuel Company, Columbus, O.; Little Rock Gas & Fuel Company, Little Rock, Ark., Division C; The Manufacturers Light & Heat Company (Ellwood City Branch), Bellevue, Pa., Division D; Natural Gas Company, Inc., Monroe, La., Division E; Lynchburg Gas Company, Lynchburg, Va., Division F; Texas Natural Gas Utilities, Beeville, Texas, Division G.

1917 WEBER AVENUE, ORLANDO, FLA.

May the tenth, '35.

Electrolux Co.,
Cat Reclamation Div.,
Evansville, Ind.

Att. Head Cat Reclaimer

Gentlemen:

I am sorry to report that due to the efforts of your organization a problem arises upon which I must ask your advice.

For the first time in five months, since coming to Florida, I find myself lacking in variety of food and ripeness of odor so relished by cats, and I lay the fault at your door.

You see, my boss bought an ELECTROLUX. Prior to the use of this anti-cat device——yum! How that old garbage can did beckon me! It seems only yesterday that half a veal roast was in there with quite a spot of hamburger. And those string beans, so welcome to my advancing years and declining teeth. And fish? We always knew the next day there'd be pickin's aplenty. Sometimes we had to paw over a lot of thrown out lettuce and tomatoes to get to the real feast, but we didn't mind that.

And now, what do we see? We see those self-same delicacies served days and days later to the folks. I hear the misses saying she got two free meals from left overs last week. But at whose expense? Not yours. Mine! I hear the boss say the gas bill hasn't gone up a quarter of the amount of the ice bill. But at whose expense? Mine!

From 1925 to 1930 I lived in a cat paradise with an ice box, only to have him buy one of your plagued machines. When we left the north for a cat heaven of sunshine and I heard the boss say he couldn't afford one of the darn things, was I happy! But the day he threw out a pound of mouldy bacon I feared the worst, and, sure enough, it happened.

Now, I'M no ordinary alley cat. I'll have you know I've been broadcast over a national hook-up, and Lowell Thomas dedicated his book to me, as "grand yowler of the 'Tall Story Club.'" I demand my just rights. More and fragrant garbage cans. Kennel Ration me eye. I eats what the family eats. The devil of it is, 255 people in this town of 30,000 have bought the same machines this last month. Where, oh where can a poor cat turn?

I'm getting on in years—I admit to ten—and I can't range as far as I could as a kitten, so, Mr. Cat Re-claimer, kindly tell me what to do?

Yours in perplexity,

BABYCATS PHELPS

Companies which stood third are: Boston Consolidated Gas Co., Division A; New Haven Gas Light Company, New Haven, Conn., Division B; Scranton-Spring Brook Water Service Co., Scranton, Pa., Division C; Union Gas System, Inc., Independence, Kansas, Division D; Ohio Fuel Gas Company, Elyria, Ohio, Division E; United Gas System, Opelousas, La., Division F; and Anderson Gas & Utilities Company, Anderson, S. C., Division G.

Members of the committee beside Mr. Quinn are: Ronald A. Malony, Bridgeport Gas Light Co., Bridgeport, Conn.; Andrew Bergman, Consolidated Gas Company of New York; Frank H. Trembly, Jr., The Philadelphia Gas Works Company; R. E. Williams, Binghamton Gas Works, Binghamton, N. Y.; William N. Walsh, Connecticut Light & Power Co., Hartford, Conn.; H. S. Dutton, Hagerstown Light & Heat Co., Hagerstown, Md.; H. S. Boyle and F. E. Sellman, both of Electrolux Refrigerator Sales Division, and John W. West, Jr., secretary.

Texas Law Prohibits Gas Wastage

APPLICABLE to all gas fields in Texas, the Small bill prohibiting wastage of natural gas became law recently upon approval by Governor Allred.

The bill calls for ratable takings and allowables of 50,000 cu.ft. from wells of 200,000 cu.ft. daily capacity and 25 per cent below that rating. It prohibits the operation of any well with an inefficient gas-oil ratio; drowning with water of any stratum capable of producing gas in paying quantities; underground waste or loss however caused; permitting any well to burn wastefully, and creation of unnecessary fire hazards.

It also prohibits physical waste or loss incident to or resulting from so drilling, equipping or operating a well as to reduce ultimate recovery. Escape into the air from a well producing both oil and gas of gas in excess of the amount necessary in efficient drilling or operation is forbidden; also production of gas in excess of transportation or market facilities or reasonable market demand.

The bill restricts the use of sweet gas to light and fuel purposes; forbids its use for making carbon black and requires that when stripped of its natural gasoline the residue be returned to the subterranean horizon from which it had been taken. Heretofore most of such gas as was used for stripping has been blown into the air and hence wasted. The quantity so wasted has been more than twice the quantity piped out and used for light and fuel.

The bill countenances no avoidable wastes of gas and is strict in its limitations on the quantities of those wastes which are unavoidable incidents in the drilling of wells and in the use of gas in producing oil. It allows the gasoline content to be extracted from sweet gas, sour gas and casinghead gas, but requires that when that has been done the residue shall be put to the other lawful uses prescribed in the bill for each. Heretofore, vastly the greater part of this residue gas has been wasted in the air.

In its equity aspects, the bill is designed to make appurtenant to every well all the gas that is contained within its drainage area, using the potentiality of the individual well and the area of the surface that is attached in ownership to the ownership of the well as the major factors in determining the allowable of each. Those who own acreage in a proven gas field which they have not developed by drilling must drill a well and produce gas to bring themselves under the allowances of the bill. When they do that they entitle themselves to pipe line connection and to their ratable part of the market the pipe line serves. It is to the well that production is allotted. But all such are given permission to make agreements and contracts, subject to the Attorney General's approval, that are designed to enable them to obtain the value of their share in a common pool.

C. E. Paige Heads Brooklyn Union

J. H. Jourdan

C. E. Paige

James H. Jourdan was elected chairman of the board of The Brooklyn Union Gas Company, Brooklyn, N. Y., at a recent meeting of the board of directors. At the same time Clifford E. Paige was elected president and Wilfred H. Weber was elected assistant secretary.

Mr. Jourdan, who on June 6 will have completed 53 years of service with the company, had been president since November 19, 1914. In 1882, he started to work for the gas company as a laborer and advanced steadily until 1895 when various companies merged into what is now The Brooklyn Union Gas Company, and he was made chief engineer of the western division. In 1910, Mr. Jourdan was elected vice-president and director and in 1914 president.

Mr. Paige has been associated with the Brooklyn Union since 1924 when he became vice-president and chief engineer. Prior to that time he had a long and distinguished career in the gas industry in Massachusetts.

Mr. Paige has been active in the American Gas Association, having been elected a director in 1923 and made a member of the advisory council in 1924. From 1927 to 1929 he was treasurer of the Association. In October, 1929, he was elected vice-president and a year later president. He is now a member of the advisory council.

Mr. Paige has twice represented the American gas industry at international conventions in Europe. He is a vice-president of The International Gas Union and president of the Empire State Gas Association.

R. B. Harper Speaks on Fire Prevention

REPRESENTING the gas industry at the thirty-ninth annual meeting of the National Fire Protection Association, held May 13-16, at Atlanta, Georgia, Robert B. Harper, vice-president of The Peoples Gas Light and Coke Company, Chicago, delivered a comprehensive paper describing the fire prevention efforts of the industry. Mr. Harper pointed to the downward trend in annual fire losses due to natural and manufactured gas and credited the National Fire Protection Association and the American Gas Association with being important factors in fostering safe practices and operations in the manufacture, distribution and utilization of gas.

While considerable progress has been made in fire prevention in the production, storage and distribution of gas, Mr. Harper stated, "perhaps the greatest advancement has taken place in the field of utilization." He went on to describe the inspection and maintenance services of many large companies and the general safeguarding of the customers through better gas appliance design, construction, installation and performance. In this latter connection, he continued, the American Gas Association's Testing Laboratory and its approval requirements committees have done much in the development and preparation of standard safety requirements for gas appliances, accessories and their proper installation.

A limited number of copies of Mr. Harper's address are available at Association Headquarters.

Nordensson Joins Roberts-Gordon

C. O. NORDENSSON, widely know authority on industrial gas applications, and for many years general manager of the Lee B. Mettler Burner Co., has joined the Roberts-Gordon Appliance Corporation of Buffalo, N. Y., where he will head the company's industrial gas burner activities.

Continuous gas carburizing furnace, gas preparation unit in foreground

R. J. Cowan Describes Gas Atmosphere Furnaces

AT the recent Seventh Tri-Chapter Meeting of the American Society for Metals, held in Dayton, Ohio, R. J. Cowan, metallurgical engineer of Surface Combustion Corporation, described recent developments in gas heated furnaces of the controlled atmosphere type. This meeting, which is attended each year by members of the Cincinnati, Columbus and Dayton Chapters, was also addressed by experts in the application of electric heating and oil heating to metallurgical problems.

Mr. Cowan pointed out the importance that controlled combustion atmospheres and entirely synthetic atmospheres are assuming in the present day heat treating practices. He reviewed the progress which has been made in this field, particularly where gas heating furnaces are concerned, going back to the early laboratory experiments sponsored by the Committee on Industrial Gas Research of the American Gas Association. He warned that it is not sufficient to say "here is an atmosphere, go ahead and use it." The way in which these atmospheres are used is very important. The speaker referred to the carbon monoxide-iron equilibrium diagram and pointed out that five different reversible reactions take place and in each of eight zones, illustrating the complexity of the atmosphere problem.

It is not always necessary to have elaborate furnace equipment to do good work, Mr. Cowan maintained, for after all a pretty good job of annealing, for example, can be done in an open-fired furnace. In this type of furnace, it is possible to produce the type of scale desired by rendering the atmosphere oxidizing or reducing. Oftentimes, however, this is not enough, but it may not be necessary to go to a muffle furnace. Free carbon, properly applied through a smoke burner, can be made effective. Copper can be bright annealed at the usual annealing temperature, but discoloration will result in cooling, therefore, why not use the controlled atmosphere only in the furnace cooling zone?

Wide Choice of Atmospheres

The speaker explained the principle of diffusion combustion in which gas and air are introduced in the furnace in layers. Next he discussed deoxidizing gas atmospheres which are the products of the combustion of gas and air, and cracked gas atmospheres which are produced by cracking gas outside the limits of flamability. These two atmospheres sometimes are combined in use. Gas atmospheres must be utilized in furnaces in connection with the proper catalysts. By slides, Mr. Cowan showed numerous types of furnaces and gas atmosphere units which operate in connection with them.

A promising future was predicted for the recently developed radiant tube, or gas hot tube, furnaces. Combustion takes place within alloy tubes and the products of combustion do not come in contact with the furnace charge. These tubes usually are made from 28 per cent chromium, 12 per cent nickel alloy and have long service life.

Answering a question concerning the bright annealing of brass, Mr. Cowan stated that an atmosphere of methanol is effective down to temperatures as low as 700 degrees Fahr., still producing a bright finish at this temperature. Some atmospheres, he pointed out, are satisfactory at the annealing temperatures, but are ineffective at lower temperatures.

New Director

ALBERT C. BRUCE, president of the United States Hoffman Machinery Corporation, has been elected to the Board of Directors of the Worthington Pump and Machinery Corporation.

Annealing copper and brass, gas preparation unit in background

Advertising Executives To Meet in Chicago

PUBLIC utility advertising executives from all parts of the country will gather in Chicago, June 9-12, for the annual meeting of the Public Utilities Advertising Association which will be held in conjunction with the convention of the Advertising Federation of America.

An unusually large attendance is anticipated according to Henry Obermeyer, of the Consolidated Gas Company of New York, president of the Association.

A feature of the convention will be announcement of winners in the Association's Better Copy Contest. The competition drew a record number of entries this year, fifty member companies submitting samples of their newspaper, direct mail and outdoor advertising.

The Association will confine its meetings to one day, June 11th, enabling delegates to attend the general sessions of the Advertising Federation of America.

The day's program follows:

Tuesday, June 11, 1935

CLUB LOUNGE—PALMER HOUSE
Chicago

OPENING REMARKS
President Henry Obermeyer

COOPERATIVE ADVERTISING
A. C. Joy, Pacific Gas and Electric Company

REPORT ON MECHANICAL COSTS

"RADIO ADVERTISING FOR UTILITIES"
C. A. Tattersall, assistant vice-president, Niagara Hudson Power Corporation

LUNCHEON
Several utility radio program transcriptions to be played (Arranged by Batton, Barton, Durstine and Osborn Corporation through courtesy of Niagara Hudson Power Corporation)

"ADVERTISING IN CONNECTION WITH RATE REDUCTIONS"
Tom Kettle, advertising manager, Northern States Power Company

REPORT OF BETTER COPY COMMITTEE
D. D. Parry, Central Hudson Gas and Electric Company

"THE APPEARANCE OF UTILITY ADVERTISEMENTS"
Vaughn Flannery, vice-president and art director, Young and Rubicam

REPORT ON CHICAGO UTILITY CONSUMER SURVEY

REPORTS AND ELECTION OF OFFICERS

This program was developed by a committee of which J. R. Pershall, Public Service Company of Northern Illinois, is chairman. Assisting him are T. P. Pfeiffer of Byllesby Engineering and Management Corporation; C. W. Tennant, Western United Gas and Electric Company and Leo Rosenberg of Lord and Thomas. Other preparations for the convention are under the direction of E. Frank Gardiner of the Commonwealth Edison Company, Chicago.

Special committee of judges for the annual Better Copy Contest of the Public Utilities Advertising Association which met at American Gas Association headquarters, New York City, on Monday, April 29, to select the best public utility advertisements of last year. Announcement of prize winners will be made at the Association's convention, which will be held in Chicago, in June, in connection with the convention of the Advertising Federation of America. The judges, seated, from left to right, are: Ralph Leavenworth, general advertising manager, Westinghouse Elec. & Mfg. Co.; Gilbert P. Farrar, typographic counsellor, American Type Founders; Earle Pearson, general manager, Advertising Federation of America; Frederick C. Kendall, publisher, "Advertising and Selling"; M. M. Scott, advertising manager, Ruud Manufacturing Co. Standing from left to right are: Donald D. Parry, chairman, Better Copy Contest Committee, P. U. A. A.; Allen B. Sikes, Advertising Bureau, American Newspaper Publishers Association; R. B. Fentress, American Transit Association; Victor E. Cooley, vice-president, New York Telephone Co.; George W. Alder, consulting engineer, Good Housekeeping Institute; A. E. Calwer, business manager, "Postage and The Mail Bag"; V. Edward Borges, president, Vincent Edwards & Co.

Air Conditioning Aids House Heating Sales

EMPHASIZING the sale of air conditioning accessories in connection with gas heating equipment, the Public Service Company of Colorado, Denver, is conducting a campaign citing the benefits of clean, invigorating air. The latest refinements whose advantages the company is turning to account on behalf of gas house heating, are winter air washing and humidifying, forced air circulation, and summer comfort by means of water evaporation, air washing and circulation. To date, April 27, over thirty satisfactory Denver installations have been made.

In commenting on the new activity, Roy G. Munroe, gas new business manager, says: "Heretofore we have stressed insulation, weather stripping, caulking, etc., primarily for the sake of fuel economy. Now we are stressing air conditioning because of the actual benefits to health and comfort. These considerations possess a stronger appeal to our customers and therefore aid us greatly in bringing about the change to gaseous fuel."

Eight thousand eight hundred and forty-six Denver homes, or 15½% of the 57,000 houses in Denver and its suburbs, are heated exclusively with gas, as of February 1, 1935. Nearly 15% of these gas heated homes are stove heated houses, heated with gas-fired circulating heaters. Better than 95% of the central-heating-plant homes are thermostatically controlled, or about 83% of the total number of gas heated homes. Sixty-nine per cent of all these gas heated homes are ceiling-insulated. In 41%, additions and improvements have been sold for heat distribution system, and in over 40% of the homes weather stripping (frequently accompanied with caulking) has been sold. The Denver heating season averages about 5880 degree days.

Frank D. Grunder Dies

FRANK D. GRUNDER, manager of sales, Tube Department of the Jones & Laughlin Steel Corporation died April 30 at his home in Pittsburgh. He was born August 19, 1868, in Minerva, Ohio.

Mr. Grunder was connected with the American Tube & Iron Company in Cleveland, until its absorption by the National Tube Company. In 1895 he was transferred to the Pittsburgh office of that company, leaving in 1916 to join Jones & Laughlin in the position he held until his death.

He was a member of the American Gas Association and the American Petroleum Institute.

If GAS could speak

I am really coal with all the dirt and labor taken away.

I bring cozy comfort instantly.

I'm so clean, so handy, so simple, so certain.

I never need stoking.

Every hour of every day, foul weather or fine, I'm always at call . . . . never off duty, never on holiday . . . .

I even provide coldness for refrigeration.

I make washing, drying and ironing easy.

I see that hot water is ever-ready.

I cost less than any other fuel on tap.

I give heat like the sun's heat —radiant, cheerful and refreshing—and while I heat I assist ventilation, so essential to health.

Go-ahead concerns depend upon me; I cut down heating costs; perfect heat control is my specialty.

Millions of customers rely on me—and I never let them down.

I cook for millions of homes; skilled chefs rely on me; I'm speedier than any other fuel.

I illuminate miles of thoroughfares.

The best streets in London—Whitehall, Parliament Square, Victoria Street, are all illuminated by me.

Reproduced through the courtesy of Frank P. Tarratt, of Newcastle upon Tyne and Gateshead Gas Company, England. The original appeared in two colors in the company's yearbook, with illustrations of gas utilization, and in somewhat different arrangement.

Affiliated Association Activities

Pennsylvania Gas Association

E. W. Ehmann

NEARLY 300 delegates and guests attended the twenty-eighth annual meeting of the Pennsylvania Gas Association at the Lodge of the Skytop Club, Skytop, Pa., May 7-9.

New officers elected were as follows: President, Edward W. Ehmann, Ardmore; first vice-president, H. N. Squier, Scranton; second vice-president, N. B. Bertolette, Harrisburg; third vice-president, W. A. Norris, Lebanon. New members of the council for three years are: H. E. Mensch, Williamsport; W. M. Tobias, Bethlehem; F. P. Duggan, Lewistown; and F. R. Fairchild, Ambler. W. G. Sterrett, Jenkintown, was re-elected treasurer; F. W. Lesley, York, secretary; and A. B. Miller, Harrisburg, managing director.

Urges Sound Principles

At the opening banquet, Tuesday evening, H. P. Liversidge, vice-president and general manager of the Philadelphia Electric Co., warned that present conditions are breeding "demoralization of thought and action," and that public utility men must continue to operate on sound principles. President T. W. McDonald, of York, presided. At the Wednesday evening banquet, Dr. Theodore J. Grayson, professor of finance, University of Pennsylvania, spoke on the "Social Dangers of Government in Business."

The Wednesday morning meeting opened with a session on distribution with Paul A. Fusselman, Philadelphia, presiding, which included a number of outstanding papers in that field. J. W. Mackie, Wilmington, presided over the accounting session at which H. S. Shevlin described the system for "Receipt and Dispatch of Orders" employed by The Philadelphia Gas Works Company.

Opening the new business session, Chairman H. S. Christman, Philadelphia, referred to the mid-winter sales conference as a conspicuous success. C. E. Bartlett, president of the Bartlett Co., Philadelphia, addressed this session on the subject of "What's Ahead in Gas Water Heating." He was followed by Lyle C. Harvey, vice-president of the Bryant Heater Co., who spoke on air conditioning. Frank Lovejoy, of Socony-Vacuum Corp., New York, closed the session with an entertaining talk on merchandising and public relations.

Percy S. Young, vice-president of the Public Service Electric and Gas Co., Newark, N. J., and president of the American Gas Association, brought the greetings of the Association to the convention.

Production was the theme on Thursday morning, with P. T. Dashiell, Philadelphia, presiding. Papers were delivered at this session by J. G. Bennett and A. C. Sedlachek, followed by a general discussion of production problems.

C. G. Segeler, utilization engineer of the American Gas Association, addressed the meeting on the subject of "Progress of Commercial Cooking." Another sales paper entitled "Utilization of a Market Research," was delivered by Ernest R. Acker, president, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.

The meeting closed with an educational playlet on modern ranges, "She Cooks To Conquer," presented by employees of The Philadelphia Gas Works Company.

Entertainment each evening was provided by the U. G. I. Music Masters Orchestra. There was also a comedy by Philadelphia Gas Works employees, a male quartet and other vocalists, and a magician. A golf tournament was held Wednesday afternoon.

Wisconsin Utilities Association

ACTIVE members of the Wisconsin Utilities Association unanimously elected the slate of officers recommended by the Nominating Committee and voted to amend the constitution to permit granting of Veteran memberships to representatives of associate member companies who have contributed special services to the Association.

Officers re-elected are: President—G. V. Rork, Northern States Power Co., Vice-President—F. A. Coffin, The Milwaukee Electric Railway & Light Co., Treasurer—C. E. Kohlhepp, Wisconsin Public Service Corp., Vice-Chairman, General Section—R. M. Houger, Wisconsin Hydro Electric Co.

The only new officer is Henry J. Dropp, commercial gas engineer for the Milwaukee Gas Light Company. Mr. Dropp, who has been active on several committees for a number of years, was elected to the chairmanship of the General Section. He takes the place of R. O. Jasperson who asked to be relieved.

There were 267 votes cast for all the officers; 263 votes were cast for adoption of the amendment to the constitution, two for rejection.

Missouri Association of Public Utilities

C. E. MICHEL, Union Electric Light and Power Company, St. Louis, Mo., was elected president of the Missouri Association of Public Utilities at its annual convention held April 24, 25 and 26 at Kansas City, Mo. Fred Karr, retiring president, was elected a member of the Executive Committee.

The association is composed of virtually every privately owned electric, gas and water company in Missouri. A total of 271

Convention Calendar

JUNE

3- 6 Edison Electric Institute
Mayflower Hotel, Washington, D. C.

4- 7 Institution of Gas Engineers
London, England

10-11 Canadian Gas Association
Quebec, Canada

20-22 Michigan Gas Association
Grand Rapids, Mich.

24-28 American Home Economics Association
Palmer House, Chicago, Ill.

24-29 American Society for Testing Materials
Book-Cadillac Hotel, Detroit, Mich.

26 Commercial Gas Sales Symposium under auspices of General Commercial Committee, Industrial Gas Section
Hotel Puritan, Boston, Mass.

27-29 N. Y.-N. E. Regional Sales Conference
Griswold Hotel, New London, Conn.

JULY

11-12 Pacific Coast Gas Association
Northwest Conference, Tacoma, Wash.

SEPTEMBER

17-19 Pacific Coast Gas Association
Pasadena, Calif.

Wk. 23 American Transit Association
Atlantic City, N. J.

Sept. 28-Oct. 1 The British Commercial Gas Association—24th Annual General Meeting and Conference
Edinburgh, Scotland

OCTOBER

14-18 American Gas Association
Atlantic City, N. J.

14-18 National Association of Railroad and Utilities Commissioners
Nashville, Tenn.

14-18 Twenty-Fourth Annual Safety Congress
Louisville, Ky.

NOVEMBER

11-14 American Petroleum Institute
Biltmore Hotel, Los Angeles, Calif.

delegates representing the member companies attended the convention.

The new officers elected for the coming year were: President, C. E. Michel, Union Electric Light & Power Co., St. Louis; 1st vice-president, C. F. Farley, Kansas City Power & Light Co., Kansas City; 2nd vice-president, Ben C. Adams, Gas Service Co., Kansas City; 3rd vice-president, E. H. Lewis, St. Louis County Gas Co., Webster Groves; treasurer, Hermann Spoehrer, Union Electric Light & Power Co., St. Louis; secretary, N. R. Beagle, Missouri Power & Light Co., Jefferson City; assistant secretary, Jesse Blythe, Jefferson City; managing director, E. A. Beer, Jefferson City.

Executive Committee: T. J. Strickler, Kansas City Gas Co.; D. W. Snyder, Jr., Missouri Power & Light Co., Jefferson City; L. W. Helmreich, Capital City Water Co., Jefferson City; E. P. Gosling, Laclede Gas Light Co., St. Louis; A. E. Bettis, Kansas City Power & Light Co.; Fred Karr, St. Joseph Gas Co.; R. G. Taber, Community Power & Light Co., Cape Girardeau; O. F. Funk, Union Electric Light & Power Co., St. Louis.

Pacific Coast Gas Association

THE next general Association meeting will be the Northwest Conference to be held in Tacoma, Washington, Thursday and Friday, July 11 and 12. The program will be planned as an open forum for the intensive discussion of load building and allied problems.

The Association's 42nd annual convention will be held at Hotel Huntington, Pasadena, Tuesday, Wednesday and Thursday, September 17, 18 and 19. At this meeting members will be asked to approve amendments to the By-Laws which will permit joining the present Commercial and Advertising Sections into one group to be known as the Sales and Advertising Section. Also the present Public Relations Section will be replaced by a special committee on Education and the name of the Accounting Section will be changed to Customers and General Accounting Section. This latter change is suggested in order to emphasize the fact that one of the most important public utility departments is the customers' office which, while usually under the supervision of the accounting executive, has many responsibilities which are more closely allied to sales and public relations than to accounting.

Michigan Gas Association

THE Michigan Gas Association will hold its annual convention in Grand Rapids, June 20-22, with headquarters at the Hotel Pantlind. Features of the opening joint session, Thursday evening, with the Michigan Electric Light Association, are addresses by Frank A. Newton of Commonwealth & Southern Corp., and Arthur W. Stace, editor of Ann Arbor News Tribune, until recently director of Michigan Public Utilities Information Bureau.

President Dan W. Hayes will open the first business session Friday morning, June 21, with an address on the highlights of his administration. Professor Alfred H. White, of the University of Michigan, is expected to review the Michigan Gas Association fellowship work during the past year. "Summer Air Conditioning" is the subject of a paper to be delivered by Major Stark of The Bryant Heating Company. Also on the tentative program for this session is an address by Frank W. Steere and a representative of the American Gas Association.

Safety factors in the gas industry will be discussed from two different viewpoints in the final session, Saturday morning. The first topic is "Safety As Related to Gas Plant Operations," by Herbert D. Straight, Grand Rapids Gas Light Company, and the second, "Safety in Distribution and on Customers' Premises," by Arthur H. Anderson, Detroit City Gas Company. The meeting concludes with an address on "Getting and Holding the Industrial Load in the Smaller Properties," by Homer T. Hood, Michigan Fuel and Light Company.

Plans are being completed for an attractive entertainment program to augment the business sessions.

West Receives Walton Clark Medal

DURING the Medal Day exercises at The Franklin Institute on Wednesday afternoon, May 15, presentation of the Walton Clark Medal was made to Frederick J. West, of Manchester, England, chairman and managing director of West's Gas Improvement Co., Ltd. and of West Gas Improvement Co., New York. The medal was received in absentia by Frederick Watson, British Consul General in Philadelphia. Many noted scientists, including Albert Einstein, were present at the exercises and received awards for notable work in their respective fields.

The Walton Clark Medal, established in 1926 by The United Gas Improvement Co., Philadelphia, was awarded to Mr. West in consideration of his outstanding service to the gas industry in the sphere of improved scientific development of gas works practice and technique, and practical gas research.

An account of Mr. West's career and the committee's citation was published in the May issue of THE MONTHLY.

Lone Star Changes

W. C. Grant

ADDITIONAL activities in the Advertising-Public Relations Department of the Lone Star Gas System have brought about a change of titles and a reorganization of the department.

Will C. Grant, who has carried the title of advertising manager, announces the appointment of Willard G. Wiegel to this position. Mr. Wiegel has been assistant advertising manager. In his new position he will have charge principally of merchandise advertising and other merchandise activities. Mr. Grant's title is advertising and public relations director.

The department, in addition to handling the advertising for all companies in the Lone Star Gas System which serves approximately 300 towns, also has charge of home economics, publicity, floor and window display, company magazine, company auditorium and is developing employee education and company library.

A. G. A. Purging Procedure Approved

THE New York State Public Service Commission issued on April 30, effective June 1, 1935, its "Rules and Regulations Pertaining to the Inspection and Maintenance of Gas Holders."

The rule providing for purging reads as follows:

> **"The purging of Water-Seal Gas Holders, Waterless Gas Holders and Pressure Holders preparatory to extensive maintenance or construction work on holders, valves and pipe connections, shall be done in accordance with the latest procedure recommended by the American Gas Association Committee and accepted by the American Gas Association. As of this date the accepted procedure is dated March 15, 1933.**
> **"This same procedure shall be followed before the holder under repair is restored to service."**

"General Safety Provisions" conclude as follows:

> **"All procedures recommended by the American Gas Association for the purging, operation and maintenance of gas works equipment and apparatus, including mains, are to be followed."**

ACCOUNTING SECTION

A. S. CORSON, Chairman H. W. HARTMAN, Secretary F. L. GRIFFITH, Vice-Chairman

Delivering and Collecting Bills for Gas Service

By WALTER J. ADAMS

The East River Gas Company of Long Island City, New York

THE question always will be before us as to the best procedure for delivering gas service bills and having them paid promptly.

The following description of delivering and collecting gas bills relates to a company serving a territory of approximately seven and two-fifth square miles in which are situated a variety of one- and two-family houses, apartment houses accommodating from a few to 356 families, and other buildings occupied by stores, factories and lofts. Gas service is supplied through about 59,300 active ordinary meters.

Bills are prepared monthly. About 90 per cent of them are delivered by collectors, and the remaining 10 per cent are mailed. Bills are mailed to customers when they request it, and to those customers who cannot be reached ordinarily by collectors. There is no discount or delayed payment charge; all bills are net and are payable upon presentation.

Value of Customer Contact

The only personal contact which the company has with a great many of its customers is through its collectors. These men are more than the term implies. They are well-informed company representatives who are thoroughly conversant with many phases of the business and who have the character, personality, experience and training necessary to perform their duties in a commendable manner. We feel that this personal contact improves the company-customer relationship. Courtesies in the form of little acts of helpfulness are extended every day by the collectors although the management may seldom hear of them. There is no doubt that these customer contacts play a very important part in promoting good public relations.

Convenience to Customers

Many customers are so situated that it is a real convenience to them to pay a collector. Otherwise, it would be necessary for them to write a check, obtain a money order, or call at one of the district offices. There are expense and trouble involved in each of these methods of payment.

Knowing the Customer

A collector is assigned to a particular district and retained in that district, as we consider it an advantage to have each collector know the customers and to have the customers know him. Every collector is furnished with an identification card bearing his photograph and signature, together with the signature of the manager. The collectors are instructed to use these cards freely in order to keep before the customers the fact that all authorized collectors carry identification cards. This is to forestall any efforts that may be made by unauthorized persons representing themselves as collectors of the company. The identification cards must be presented each day in order for the collectors to receive their work.

Contribution of the Customer Accounting Committee.

Preparing Bills

A three-part bill is used—body of bill, cash coupon and credit coupon. In the preparation of bills for the Credit and Collection Division, all bills to be mailed are symbolized so that they can be readily withdrawn and mailed. Before a collector receives the bills assigned to him, the credit coupons are detached and maintained as a record in the Credit and Collection Division.

Collectors report to the office at the end of each day. Bills for delivery on one day are given to the collectors on the evening of the preceding day. The collector goes to his delivery route directly from his home each morning and upon his arrival there reports by telephone to his division head. All bills are arranged in route order before the collector receives them.

Delivery of Bills and Material

When delivery of bill is made and the bill is paid, the collector receipts the body of the bill and leaves it with the customer, detaching the cash coupon which is used as a record of payment. If the bill is not paid, the collector leaves the body and cash coupon of the bill with the customer.

For the convenience of customers, an addressed envelope is left (not postage paid) where a customer is not prepared to pay the bill at the time of the collector's call but intends to mail payment. A monthly bulletin containing information of interest to customers is delivered with each bill. If collectors cannot contact the customer, the bill and other material are placed under the door, out of reach. When this cannot be done, the material is brought back to the office and mailed; under no circumstances do collectors deposit bills or literature in mail boxes.

When the collectors return to the office at the end of the day, all cash coupons are turned in with their collections. Later these cash coupons are checked against credit coupons. The credit coupons of those bills that have not been paid are temporarily filed seven days for credit action.

Time on District and Results

A collector is on the district about six hours a day, delivering approximately 230 bills and collecting approximately 30 per cent of them. Therefore, there is brought back to the office at the end of each day a very substantial part of the amount represented by the bills assigned to the collectors.

Increasing Efficiency

Collector-customer contacts enable the company to learn more about the customer's idea of service it is rendering. In many cases, customers desire information which can be furnished by collectors at the time of their calls. This eliminates the necessity of the customers communicating with the office. It can readily be seen, therefore, that customers obtain prompt and efficient service with a minimum of effort on their part through the contacts of collectors.

Any condition affecting the service that requires immediate attention is telephoned without delay to the office. Occasionally collectors find premises vacated where customers have not given orders to have the service discontinued. These cases are reported and the required orders are issued for the discontinuance of service. When such discoveries are made, collectors obtain, if possible, the address to which the customer moved and any other information that might be of assistance. Not infrequently information having a pertinent bearing on the customers' responsibility is disclosed to the collectors, who report the matter to the credit division.

Compensation and Duties

Collectors are paid on a straight-time salary basis with no other compensation. Careful thought is being given, however, to a plan that is now in use by some companies whereby a fixed amount will be paid for every current bill collected, and a fixed amount for every bill in arrears collected. Regular bill collectors deliver bills, collect when it is possible to do so and report the service requirements of customers. In addition, the collectors are ever on the alert for

the interests of the customers and the company.

Delinquent Bills

Seven days after the delivery of bills, notices requesting payment of bills are prepared and mailed to those customers who have not paid their bills and whose credit ratings indicate that requests for payment notices are required. If seven days elapse and these bills have not been paid, other collectors known as delinquent bill collectors make calls to collect bills due or discontinue service if it is necessary. In some cases, a second notice is mailed following the expiration of seven days after the mailing of the first notice.

Economy is an important consideration. When reflecting upon the cost of delivering bills to customers in any way other than by collectors, when there is no discount or delayed payment charge, it seems that delivering bills and collecting them where possible on one call is economical considering the number and amount of bills that are paid upon presentation.

Standard Practice Manuals

By S. STANLEY ELLIS

Public Service Electric and Gas Company, Newark, N. J.

MUCH has been said and written concerning new accounting systems and more efficient procedures but unless the proper follow-up is made to insure that the new plans are being used correctly and adequately, much of their efficiency will remain theoretical. One of the most effective methods of follow-up is the use of standard practice manuals, especially in the case of public utility companies having a number of branch offices. The advantages of standard practice manuals are many, including more uniform methods, better understanding of company procedure, improved customer relations and possible economy in operation. Also, the manuals are very helpful when used in conjunction with entrance training courses for company employees.

In the case of one company a "Manual of Accounting and Procedure for Commercial Offices" has been adopted. In this manual are incorporated instructions issued and procedures followed during a period of more than twenty-five years.

In order to prepare a standard practice manual for a large company it is necessary to solve many problems, including the instructions and procedures to be covered in the manual, the quality of paper, the style and the size of type to be used in setting it up. Among the most important problems that arose in connection with the preparation of the manual adopted were the following:

1. The size and scope of the manual presented a major problem, especially when consideration was given to keeping revisions up to date. This problem was solved by making a survey of conditions in the company, keeping in mind the actual needs the manual was to fulfill.
2. Proper classification and segregation of the material to be included was discussed. The division of the manual into six major departments was decided upon as the most suitable for quick reference.
3. The question of whether the manual should be loose-leaf or bound was carefully considered. It was decided to use the loose-leaf form due to the fact that revisions could be made at much less expense.
4. Consideration was given to the size of the paper. A letter size sheet 8½" x 11" was adopted as being best suited for the requirements of the company.
5. The question of whether mimeographed or printed sheets should be used was decided in favor of a printed sheet. While the printed sheet cost considerably more it was decided upon principally for two reasons—it would stand harder use and in general be more impressive.

It was decided to assign a manual to every commercial office employee except those in the meter reading, collection and sales departments. In these departments one manual was assigned to every ten employees, thus permitting its circulation among the employees in such manner as seemed desirable. Manuals also were issued to all electric and gas engineering departments and to certain executives and employees in the general office. A card record is maintained for all Manuals of Accounting and Procedure assigned and in stock.

General letters of instructions, outlining new instructions or making changes in procedures, are issued to all departments concerned and periodically these letters are incorporated in the manual by the issuance of revised printed sheets. The obsolete sheets are recalled at once to the general office where a check is made to determine that the proper sheets have been returned.

After having had its "Manual of Accounting and Procedure" in use for about six years, it is felt that the results as measured by more uniform methods, better understanding of company procedure and improved customer relations, more than offset the cost incurred in the preparation and maintenance of the manual.

Contribution of the Customer Accounting Committee.

Special Librarians' Convention

The Special Libraries Association will hold its 27th annual convention in Boston, June 11-14, with headquarters at the Hotel Statler. This organization has a membership of 1600 trained librarians who manage the libraries of industrial concerns, research laboratories, banks, business offices, etc. Libraries of several gas utility companies are counted among the membership of the Science-Technology Group.

Accounting Luncheon Conferences

AS a result of insistent demand on the part of Accounting Section members, luncheon conferences will again be a feature of the A. G. A. convention session in October.

Last year a total of 183 members attended the conferences and they were one of the most valuable features of the convention, in so far as the accountants were concerned.

This year the luncheon conferences will be "bigger and better." There will be four groups, namely:

Customer Accounting
Office Management
General Accounting
Customer Relations

Programs are being planned carefully and detailed announcements will be made shortly. Prominent members of the Accounting Section will preside at each of the meetings.

A quick review of some of the questions to be discussed at the Customer Accounting Conference will show just how valuable these meetings are. For instance:

Are *you* interested in the methods and problems of refunding customers' deposits interest periodically, where such refunding is obligatory?

What about hand delivery of bills? Won't a free discussion of this be of assistance and value?

How to solve customer accounting problems resulting from gas divergence.

What methods are employed in adjusting customers' accounts when meters test fast or slow?

What is the future of stub accounting?

In other words—these are conferences at which *your* problems can be aired! By the way, if you have any ideas for topics for discussion, send them to A. G. A. headquarters. They will be welcome.

No minutes of these conferences are kept. You must attend to benefit. Everything said is off the record.

COMMERCIAL SECTION

F. M. ROSENKRANS, Chairman — J. W. WEST, Jr., Secretary — C. E. BENNETT, Vice-Chairman

Range Sales Mount as National Contest Nears End

H. M. Brundage, Jr.

IT won't be long now before Uncle Sam will be delivering sixty-six checks totalling $9,000—eighteen beautifully embossed certificates—and two hundred and eighty-two gold lapel buttons, all in recognition of the greatest four months' gas range sales activity this country has ever known.

While the original goal was 500,000 gas ranges in four months, each company participating selected only a two months' selling period—so that, in effect, the plan was to sell 500,000 gas ranges in a two-month period.

That, in itself, was an ambitious program representing an increase of 66⅔% over the same period last year. But more than that the pressure was put on only completely equipped ranges in an effort to grade up the appliances sold by all the contestants.

Expectations Exceeded

While only two-thirds through our contest period, present indications are that the contest is not only producing all the possible results we might have hoped for, but is in many ways exceeding our fondest expectations and it is not at all improbable that final reports will indicate combined sales of at least 500,000 ranges.

At the moment of writing, a number of companies have completed their two-month period and final reports are being received every day. The letters which accompany these reports, explaining the methods used in attaining their individual results, bubble over with enthusiastic praise for the national stimulation which this contest offered.

The plan of dividing the $9,000 in cash, plus the other substantial awards, has been turned over to a committee composed of Major Alexander Forward, managing director of the American Gas Association, F. M. Rosenkrans, chairman of the Commercial Section and Allan Tappan, vice-president of the Tappan Stove Company, in whose hands will rest the entire distribution of prizes and awards, and final reports are being turned over to this Committee as rapidly as they are received.

It will be obviously unfair to tell the companies who are still campaigning, the final results of companies who have completed their Spring campaigns, so the Awards Committee is keeping all information of this character confidential even from the Range Committee until after the close of the contest period on June 30th.

I have received a great number of letters from all over the country, outlining in general their plan of procedure and partial success at the time of writing and I am struck by the number of "dark horses" which we have in our midst. There seems to be no doubt that the winning companies in all six divisions will, individually, have done outstanding jobs, in most cases far in excess of any previous campaigns.

After all is said and done there are only twenty-four hours a day in which to work and only seven days a week. By the law of averages, a group of salesmen can't exceed these figures by very much. Assuming, therefore, that all the contesting companies extended their own efforts to the maximum, which we have every reason to believe has been done, it is quite possible, therefore, that the winning companies will be those who have early in their plans taken into consideration the presence of the dealer and cooperated with him on some mutual basis in order to increase sales.

Simply on the basis of the letters which I have received, it looks as though utilities' sales, plus dealers' sales, will amount to 3% to 5% of the domestic meters in most of the divisions. Considering that these reports cover only a two-month period, it is fair to assume that these winning companies will continue extensive activity on range sales and will sell at least 10% of their domestic meters this year.

The one thing that has made this national contest "sure fire" is the competition which it has offered. There is little to any contest which has substantial basis except competition. If this is true on a national scale it is even more true on a local scale and the company or division which comes out on top will be that company which has felt the competitive urge and will gain the greatest amount of personal satisfaction when the job is finished.

Competition Essential

You can throw together almost every known combination of the usual ingredients for a sales campaign but without that one element competition, the plan falls flat. In like manner any combination of sales material wil invariably prove successful if the theme song is competition.

A successful sales campaign requires much more than a pretty set of cash bonuses. It requires a lot more than a daily dose of sales manager's hot air every morning at eight-thirty. It requires a lot more than a commission check at the end of the month. What it requires more than anything else is competition. A salesman can spend his commission check in thirty minutes. He can lose his bonus money in a crap game in fifteen minutes. He can gladly forget the sales manager's hot air in five minutes . . . B-U-T . . . he won't sell his satisfaction . . . trade his confidence . . . or gamble away the thrill of beating his fellow salesmen. The checks and ballyhoo are stale news tomorrow, but the thrill of winning in fair competition is the stuff salesmen thrive upon.

Just sit back and take a good straight forward look at our industry as a whole. By and large, do you consider the gas industry as representing a particularly strong and healthy sales organization? In the industries with which you are familiar, how do you think the gas industry stacks up by comparison with other sales organizations?

Utility selling is as different from general mercantile selling as Wright's flying machine and the new Trans-Pacific Clipper Ship. But that fact is no excuse to stop by the side of the road and wait until the highway is paved with six lane concrete. Whether the general public and delegated public servants realize it or not, we, the

By H. M. BRUNDAGE, JR.*

General Sales Manager, Washington Gas Light Co.

High scorer's lapel button

*Chairman, Domestic Range Committee, American Gas Association.

AMERICAN GAS ASSOCIATION

RANGE SALES CONTEST AWARD

This is to Certify that First Prize has been conferred upon

The National Gas Company, Murdock, Va.

for outstanding achievement in the sale of modern gas ranges during the 1935 National Contest conducted by the Association.

Chairman, Commercial Section

Chairman, Domestic Range Committee

Reproduction of winning certificate

sales end of our industry, are also the eventual salvation of that industry. And with the tools we are given to work with, there is a tremendous job to be done.

Many salesmen, also a goodly number of sales supervisors and unfortunately a considerable number of sales managers are so "policy minded" that they cease to function as real live awake "go-getters." Our industry has many problems peculiar to itself and it is easy for the sales department to use the old alibi of "company policy" and "public relations" to excuse their lack of results. In general commercial selling, the sales force which reverted to "free-wheeling" tactics would soon find itself without further use for the old family alarm clock. We are damned by a lethargic attitude which often gets by because we are a utility.

Instead of weeding out the weak sisters and dumping the excess ballast which most of us suffer to exist, we overlook many of the fundamentals of a real sales organization and bury our efficiency with our self-respect. The depression has provided a beautiful opportunity to rebuild our forces. The organization which has not taken advantage of this opportunity has certainly missed a wonderful bet.

There are 282 gas utilities who have learned during the past few months many lessons individually and collectively. Many of these companies have found out that their local dealers are not the antagonistic individuals many of them were supposed to be, but are honest, sincere business men anxious to cooperate and possessing many merchandising attributes which we would do well to follow, and who only need the leadership which the local utility can and should naturally give to put the modern gas range in the spotlight of their current activity.

Many companies have learned that better gas ranges can be sold, and in substantial quantities, by playing up the modernness of the 1935 gas range. A substantial contribution to this theme was the introduction of the teaser ads which were included in the sales material originally sent out by the Range Committee and which are or have been used by more than 20% of the industry in connection with their local campaigns. A whole story could be written on the advertising value of the slogan "I'm Buying a Modern Gas Range." The fact that it clicked so spontaneously indicates that our industry, as a whole, is alive to the appeal.

Our contest closes on June 30 and by a recent ruling each contesting company has ten days after the close of their individual campaigns in which to complete the installation of orders taken during their contest period. We, therefore, expect that the last reports will be in our hands shortly after the 10th of July and sometime between the 15th and 20th, our Awards Committee will break the great news and our Industry can congratulate itself upon having done a great job.

Housing Loans Estimated

THE Federal Housing Administration announced May 11 through Acting Administrator Stewart McDonald that modernization credits, home mortgages and low cost housing projects insured or committed under provisions of the National Housing Act amount to date to $101,540,571.

All of this money is private capital advanced by financial institutions under the modernization credit plan and the mutual mortgage insurance plan of the Administration.

Modernization credits alone account for $66,222,065 of the total. These are extended to finance additions, alterations, repairs and permanent installation of necessary equipment to all types of real property. For every insured dollar of credit obtained in this manner, several dollars in cash has been spent by property owners. The total of modernization work done with cash and insured credit since the program was launched last August is estimated at more than $400,000,000.

The Administration has received applications for more than $241,000,000 worth of insured mortgages on low cost housing projects and on mortgages for one-to-four-family dwellings. Of this amount $200,000,000 is for law cost housing projects, all new construction, of which there have been commitments on projects totalling more than $11,700,000. There have been mortgage insurance applications for more than $41,000,000 on the one-to-four-family projects, of which one-third is for new home construction, and of which there have been commitments totalling $18,800,000.

Dean of Range Salesmen Dies

John F. Parker

JOHN F. PARKER, associated for thirty-five years with the Geo. D. Roper Corporation, died at his home in Rockford, Illinois, on Thursday evening, May 9.

Mr. Parker was born in Henderson, Kentucky, in February, 1858. For the past thirty-five years he had been a resident of Rockford, Illinois, where the plant of the Roper organization is located.

Intimate friend and employee of the late Geo. D. Roper, Mr. Parker was closely associated with the growth of that firm. As its representative, he had traveled the country over, making numberless friends en route. Everyone knew him as "John" or "Colonel" and welcomed his visits. One of his proud claims was that his sales were made on the basis of honesty and personality, without benefit of catalogs, sales manuals, or other printed matter.

Because of his wit and inexhaustible fund of humorous stories to fit any occasion, he was greatly in demand as a speaker at regional Gas Association meetings, national conventions, and at various banquets.

Under no conception of our government is it right and proper for duly elected officials to use the power of their offices to bring about fundamental changes in government on which the citizens have not had the opportunity to vote.

—JOHN E. ZIMMERMANN.

INDUSTRIAL GAS SECTION

J. F. QUINN, Chairman C. W. BERGHORN, Secretary C. W. GALE, Vice-Chairman

Ferrous Metals and the Gas Industry

H. A. Clark

By HALE A. CLARK*

Detroit City Gas Company, Detroit, Mich.

A REVOLUTION in the use of fuel in the heat treatment of ferrous metals is at hand. A distinct trend toward gas as a heating medium is clearly evident. It is the business of the Ferrous Metals Committee of the Industrial Section to play a part in keeping the industry abreast of those current developments, of which there have been many of significance recently.

Only in recent years have manufacturers of furnaces developed that type of gas heated unit that meets the increasingly insistent demand for precision in the heating of ferrous alloys used so largely in the automotive industry and elsewhere. The attention of the writer, located in the center of automobile production, naturally turns toward that specific industry. When it is considered that the average car from the time of delivery of the steel to the automotive plant requires about 2,500,000 B.t.u.'s of heat before it is ready for delivery, it can be seen that the various equipments and processes through which this heat is applied can be a very significant matter.

Improved Burner Design

To the development of the equipment to meet the precise requirements of the automotive industry, the gas industry has contributed in no small measure. It has spent its money on pure research. It has developed a greatly improved technique in burner design and application. It has directed its efforts to narrowing the range of variations in analysis in gravity and pressure of the product of its gas plants. It has fostered and earnestly sought to deserve the favorable consideration of its product by those industries to whom its mains run.

A measure of the significance of these things need not be sought among the "intangibles." It exists in tangible form in the innumerable relatively complex heating machines in the many industrial plants and in the increasing volume of gas which these machines use.

If Detroit may be cited as an example, the measure of this growth appears in these figures: In 1924 Detroit industry used 55,000,000 cu.ft. of 530 B.t.u. gas per month for the heat treatment of steels; and 9,000,000 cu.ft. for the heating of steel for forming.

Ten years later when the general trend of business was 30% under that of 1924, industry used 130,000,000 cu.ft. for heat treating and 36,000,000 cu.ft. for forming. Industry, operating at a lower level of production, had increased its use of gas for these processes nearly fourfold.

Industrial Gas Progress

The first six or seven years of this decade were ones largely of development. To be sure, the use of gas was gradually increasing but furnace units were largely of the batch or intermittent type. Significant loads were going to other heating media, somewhat to the chagrin of the industrial gas man.

During the past three years, and again citing the Detroit situation, there have been connected to the mains some 75 major gas heating machines, which are all of the continuous production type as contrasting with the intermittent. Furthermore, by far the larger number of these machines perform operations which were formerly performed by other heating media.

In reviewing these developments in the ferrous metals heating processes, five general classifications may be made: hardening, annealing and normalizing, drawing, forging, carburizing.

The process of hardening is essentially one of heating steels to temperatures of 1500 to 1600° F., followed by quenching. The control of temperature must be exact and the quenching must be performed before any material drop in temperature can occur. Furthermore, there is an insistent requirement that the steel be protected from scale. This requirement industry has sought to meet heretofore by controlling the proportioning of the air with the fuel to assure a nonoxidizing atmosphere of combustion gases about the work; and by devising such furnace construction as would prevent the infiltration of air from the room to the furnace chamber. Quite recently the use of muffles of alloy steel has begun with such equipment. The combustion gases are excluded from the work and a special atmosphere made of the heating gas, but reformed by cracking, is injected into the muffle.

A further and most recent development for this hardening process has been the muffling of the heating gas from the work as contrasting with the muffling of the work from the heating gas, as mentioned in the paragraph above. This is accomplished by burning the gas in alloy tubes from which the heat is transmitted to the work by radiation. The work itself is in an atmosphere of reformed gas of the same character as that mentioned above.

The processes of annealing and normalizing are essentially ones of heating to approximately the same temperature as for hardening, but differ from the latter in that cooling is gradual and at a controlled rate. The problem of devising heating machines for this process is met by the use of continuous furnaces with burner equipments properly distributed to develop the rapid rise in temperature required and to permit the gradual drop off in temperature from the peak to a proper level at the time that the product emerges from the furnace. The problem of obtaining special surface conditions is presented in connection with the normalizing of sheets for the deep drawing necessary for automobile fenders, bodies, and the like. Here finish is essential in order that the subsequent coatings of japan, lacquer, and the like, be properly applied.

Bright Annealing

In this so-called bright annealing of "deep drawing sheets" a special atmosphere surrounds the sheets and combustion takes place in tubes as it does in the hardening operation referred to earlier. This special atmosphere, which protects the sheets from scaling and discoloring, is made of the same kind of gas which is used for heating but which has been reformed by cracking.

The process of drawing is essentially one of heating to temperatures under 1000° F. with a gradual cooling. The most striking development in heating machines for such work has been in the use of equipments by which the fuel is not burned in the furnace itself but is burned in a chamber external to the furnace, the heat being conveyed to the furnace by the recirculation of the burned combustion gases. It is somewhat surprising to the uninitiated, upon looking into such a furnace, to see no appearance of heat whatsoever. At this lower operating temperature, the permis-

* Chairman, Ferrous Metals Committee, Industrial Gas Section.

sible variation in range of temperature is even less than with operations at higher temperatures. The problem of evenly heating the furnace load is somewhat greater. By the heating process described, satisfactory results are being consistently obtained.

In this drawing process the industrial gas man has for some years been unable to satisfactorily meet a competition which was offered by a type of equipment heated by radiant electric energy. Recently developed equipments of the batch type, as contrasting with the continuous type, and which incorporate the principle of recirculation of combustion gases, offers a perfect substitute for these competitive equipments, and furthermore incorporates certain additional advantages.

The process of carburizing is one of heating steels to a temperature of about 1700° F. and holding it at that temperature for a period of about 12 hours in the presence of a carbon laden atmosphere. In general, two methods are used, one in which the atmosphere is a hydrocarbon gas, filling the furnace chamber in which the steel is muffled away from the combustion gases; the other in which the steel is packed in alloy boxes together with a filling of carbonaceous material.

Mass Production Demands

Carburizing, as described in the first case, is not a new process. Equipment of the batch or intermittent type has been available for a good many years. With this equipment the steel is placed in a retort to which the hydrocarbon gas is introduced and the retort is externally fired. However, the demands for mass production have tended toward the use of continuous furnaces of considerable length, in which however the second method of carburizing has been used. It has been only recently that the first method of carburizing with continuous furnaces has been available.

The demand for mass production in continuous furnaces was met early in this decade by the use of equipment heated by electrical energy, the adoption of which was advocated upon the basis of the ability to readily control temperature gradients. We well remember the enthusiasm with which the industrial gas man received the news of the first gas heated furnace of this type, which was built in Chicago in about 1928. Since that time a considerable number of these units have been installed and in several cases they replace operations which were on other heating media. Excellent results have been obtained at a satisfactory operating cost.

The adaptation to continuous type of operation of the first method of carburizing mentioned above has been but recently available. The incentive to the use of such equipments is the material decreasing of the time required in bringing the material up to the carburizing temperature at which it is held for the approximate 12-hour period. About four hours of time is saved by the use of the first of the two carburizing methods. The development of the continuous process may be considered a real achievement, since it can now be said that gas-fired equipment is available to meet whatever the requirements of the individual plant may be.

Typical scene in a modern steel plant

The process of forging is in general one of heating steels to temperatures of about 2400° F. The adoption of continuous gas heated furnaces for such operations has made somewhat faster progress in territories in which natural gas is available. In manufactured gas territories, a considerable amount of business has been obtained on continuous furnaces where light sections are heated to temperatures of about 1900° in preparation for forming in bending or shaping machines. The advantage which gas has shown in such equipment lies in the ability to heat large numbers of alloy steel parts uniformly to a predetermined temperature, with the formation of a minimum of scale and with the assurance of a uniformity of results. It is such operations as this which account for the increase in the use of gas for forging in Detroit, where some 25 such furnace units have been installed in the past three years.

We have passed that period in which the industrial gas man was handicapped by inability to offer heating machines which could produce the results offered by the equipments of competing heating media.

Scrapping "Morro Castle"

The Union Shipbuilding Company of Baltimore, one of the "scrappingest" institutions in the world, is using gas to cut up the $5,000,000 Ward liner, *Morro Castle* for scrap.

The speed with which a huge ship can be demolished may be deduced from the rough data that it takes five days to completely scrap an 8,000 ton ship using manufactured gas and oxygen in place of acetylene and oxygen.

To Study Commercial Gas Sales Problems

By H. A. SUTTON*

FOR many years the American Gas Association has had a committee in the Industrial Gas Section assigned to that portion of commercial sales known as hotel and restaurant sales or large volume cooking sales. Much valuable work has been done and considerable progress made in solving the many problems occuring in this field. However, there is still a large portion of the total commercial sales that comes from other uses than large volume cooking.

There are the tailor, the barber, the beauty shop, the delicatessen store and some hundred or more other types of stores and shops where gas is used, can be used, and in some cases was used.

Although the amount of gas sold to each customer is usually comparatively small, when compared to the average amount sold to industrial customers or large volume cooking customers in the field the total sales become in many territories comparable to the industrial sales and also to the large volume cooking sales.

Another important thing to remember is that the average rate earned for gas in this field is higher than that earned by any other class of business except domestic. This is due to the fact that gas sold to these customers represents in practically all locations, gas sold on the first steps of the general rate in effect for general consumption. This, combined with the desirable load characteristics makes it an excellent profit producing business.

Gas sales to these commercial customers have been built up over a period of years at very little expense to the gas industry. A natural development aided by the merchandise efforts of supply houses and the demand for modern convenient appliances have been largely responsible. Our industry has aided but certainly energy and sales promotion in this field have been lacking, at least when compared to our efforts in other fields.

Decline in gas sales and reports that competitive equipment was rapidly replacing gas equipment in certain commercial establishments gave reason for the establishment of a committee to investigate the status of gas in the commercial field and to give attention to possibilities of acquiring and maintaining more business.

This committee is now in its second year. There has been some progress made. Quite naturally it is slow, because knowledge of the various problems is limited. However, as experience increases so will knowledge and faster progress will follow.

The study by the committee is divided into the following phases:

1. Advertising.
2. Cooperation with manufacturers of equipment.
3. Cooperation with sales agencies selling equipment.
4. Development of a trained personnel to contact these customers.
5. Servicing of equipment.
6. Sales methods to use in acquiring new business including plan for survey of the field.
7. Development of modern, convenient equipment.
8. Development of additional uses for gas.

In order to give the industry a chance to sit in on the work a symposium has been planned for June 26, 1935, at the Hotel Puritan in Boston. This is the day prior to the meeting of the Managing Committee of the Industrial Gas Section which will be held at the same hotel and also the day before the opening of the Spring Sales Conference at the Hotel Griswold in New London. This will give members of the industry an opportunity to conveniently attend all the functions.

At the symposium an attractive program, including full discussion of all the phases of commercial gas sales as listed above, will be presented. In addition important announcements will be made regarding the national advertising campaign covering the commercial field.

The committee extends a cordial invitation to all who are interested in commercial gas sales to attend and participate in the discussion. By the exchange of information we, as an industry, are better fitted to act as a unit and by so doing strengthen our position.

*Chairman, General Commercial Gas Sales Committee, Industrial Gas Section.

New Home Service Director

Miss Lulu Tregoning has been employed as home service director of the Kansas City Gas Company. Miss Tregoning began her new duties in Kansas City, Monday, May 13. She is working under the supervision of Herbert C. Porter, new business manager of the Kansas City Gas Company.

Gas Exhibit at Hotel Show

Gas exhibit at the annual New England Hotel Exposition, held at the Hotel Statler, Boston, April 24-26, which attracted much favorable comment. The exhibit was centralized, extending the entire length of the main ballroom, and was surmounted by a sign setting forth the desirability of economical fuel. The exhibit was sponsored by the New England Gas Association and the American Gas Association with the following manufacturers participating: American Stove Co., G. S. Blodgett Co., Detroit-Michigan Stove Co., General Equipment Corp., The Murray Co., Savory, Inc., Standard Gas Equipment Corp., and John Van Range Co.

COMMERCIAL GAS SALES SYMPOSIUM

Under Auspices of General Commercial Committee
Industrial Gas Section

PURITAN HOTEL : BOSTON, MASS.

Wednesday, June 26, 1935

Book Review

Fuel Gas—Safe Industrial Use—Associated Factory Mutual Fire Insurance Companies, Inspection Department. 70 pages, 5" x 7", 60 line cuts and pictures, price —35¢.

The first edition of this booklet now available in printed form is intended to be used as a guide for safe installation practice. It describes briefly the common fuel gases and outlines the proper methods of arranging gas burning equipment with its protective devices. The recommendations start with the general subject of gas distribution, piping and storage, giving some special pointers on both low and high pressure piping, meters and holders. Succeeding sections cover gas burners and mixers of several types and illustrate some typical installations. The remainder of the book is devoted to discussion of specialized equipment used in industry. Japan and enamel ovens, bakery ovens, heat treating furnaces, boilers and other industrial appliances are discussed in detail. The various safety devices available for the automatic control of gas and air flow are described. Safety devices using electric current are given special treatment in the form of a series of wiring diagrams showing the various possible applications.

Members of the gas industry realize that changes in the art of gas application are very rapid and new safeguards are constantly becoming available. Consequently, it is not expected that this material will be used in the manner of a code or of a mandatory set of rules. The utility of the material lies in its presentation of the generally accepted safety methods and protective devices in a handy reference form.

—J. M. K.

Advisory Board for Bureau of Mines

TWENTY-NINE leaders of the mining and allied industries have accepted invitations from the Secretary of the Interior to act as an Advisory Board to the Bureau of Mines. The purpose of the board is to advise the Director of the Bureau, Dr. John W. Finch, on matters of Bureau policy affecting relations with the industry.

Frank L. Chase, of Dallas, and J. D. Creveling, of New York, have been appointed to represent the natural gas industry.

Check Novelty

There recently arrived at Association Headquarters a check from the Amarillo Gas Company, Amarillo, Texas, containing a unique sticker affixed to the upper left hand corner. The sticker was in red and black, with scalloped edge, and carried the following message:

"I am a gas company employee. Our gas sales helped me pay you. Buy gas and help your business."

Advertising men in the industry who may be interested in this little advertising feature should correspond with R. E. Wertz, president of the Amarillo Gas Company.

Announce Direct Mail Campaign in Commercial Field

AS the result of a most careful study, a committee of the Industrial Gas Section, realizing the need for intensive promotion of the use of gas in the general commercial field, and recognizing the effectiveness, for this purpose, of direct-by-mail advertising, has had a campaign prepared for this market. The campaign is designed to provide leads for salesmen that will help increase the commercial gas load and protect it against encroachment by competitive fuels in the following fields:

1. Hotels, restaurants, clubs, institutions
2. Delicatessens, and bake shops
3. Tailor and pressing shops
4. Barber and beauty shops
5. Counter food dispensers; drugstore, lunch stands, etc.

A portfolio, illustrated above, containing samples of all mailing pieces will be mailed to all gas company members within the next thirty days. This preliminary announcement is made in order that preparation may be made to give the use of this material every favorable consideration in the interest of promoting sales.

Those who oppose the utility organization, whether they be holding companies or operating companies, assume an attitude of superior virtue and patriotism. They seek to paint us who represent private enterprise in the utility business as anti-social, unpatriotic and the despoilers of men. I yield to no government official, be he high or low, in my social obligations, love of country or fellow feeling for the struggling masses of humanity. I do not like to make personal references, but I want to say to you that no duty has ever come to me in my life, even that in the service of my country, which has so appealed to my sense of social obligation, patriotism and love of mankind as this, my obligation to say and do what I can for the preservation of public utilities privately owned. All that I have observed, all that I know, and all that I read teaches me that I could do nothing nobler for the future financial stability and political good of my country or the social and economic well-being of my fellow citizens than to stand firm and unafraid against this foolish fad and fancy of the moment.—WENDELL L. WILLKIE.

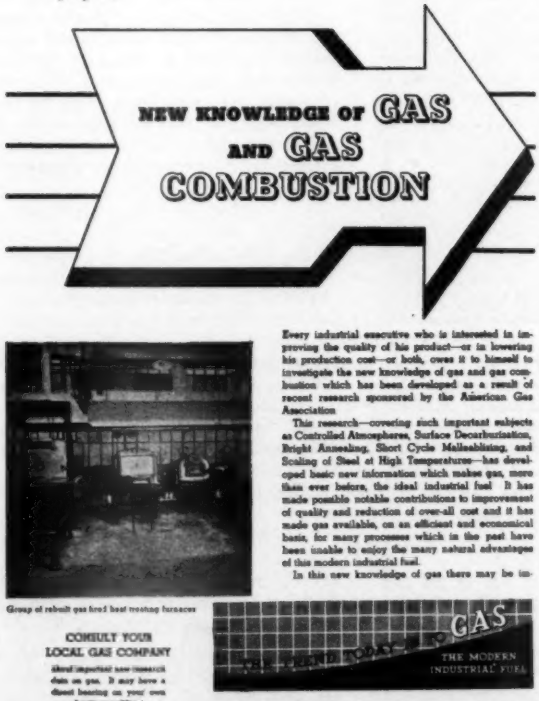
Transit Convention

The 54th annual convention of the American Transit Association and its four affiliated Associations will take place at Atlantic City, New Jersey, during the week of September 23. There will be no manufacturers' exhibition this year.

Industrial Gas Advertisements for July

Left—Reproduction of full-page advertisement which will appear in Bakers Weekly, *July 6, and* Bakers Helper, *July 27*

Below — Reproduction of double-page advertisement which will appear in Iron Age, *July 4, and* Steel, *July 15*



TECHNICAL SECTION

C. A. HARRISON, Chairman · H. W. HARTMAN, Secretary · F. A. LYDECKER, Vice-Chairman

Nearly 400 Engineers Attend Distribution Conference

ONCE again demonstrating that it takes more than depressed business conditions to dampen the ardor of distribution engineers, nearly 400 delegates from all parts of the country attended a lively and instructive conference at Cleveland, Ohio, May 2-4. The outstanding feature of the meeting proved to be the dinner sessions, six of which were held simultaneously and which brought out spirited discussion on different phases of the industry. Another high spot was the visit to the A. G. A. Testing Laboratory where many of the delegates for the first time viewed the many ramifications of the Association's testing and research program. This visit is described elsewhere in this issue of THE MONTHLY.

In his "Opening Remarks" the Distribution Committee Chairman, Erick Larson, told how the year's conference program had been based largely on the results of a questionnaire sent out as to the subjects of most vital interest to distribution men. This questionnaire had shown that the subject of first importance concerned meters, with pipe coatings and corrosion coming next; and foreign matter in mains and employee education, third. Mr. Larson gave high praise to the work of the Cleveland Laboratory which has now acquired an international reputation for accuracy and unbiased findings.

Symbol of Faith

C. E. Gallagher, president, The East Ohio Gas Co., Cleveland, Ohio, welcomed the visiting engineers to Cleveland, stating that this meeting was a symbol of the faith of the gas industry to carry on at a time when the industry was subject to severe attack. It was his belief that the public is now awakening to the fact that the government cannot and should not take over the service the privately owned utilities are giving, thus placing it in the hands of those who have no knowledge of its essential details. We are now facing a condition where we are going to have public ownership with political management or private ownership with efficient management.

The first paper on the program by W. M. Henderson, Los Angeles Gas and Electric Corp., Los Angeles, Calif., considered the subject of "Main Extension Fittings." With the aid of slides Mr. Henderson showed in detail the application of the pressure control fitting utilized by his company to avoid the inconvenience associated with shutting down a pipe line, to reduce the cost of such work and to eliminate all hazard in the performance of such jobs.

Attention was called by F. O. Suffron, A. G. A. Testing Laboratory, Cleveland, Ohio, in a paper on "Appliance or Low Pressure Regulators" to the fact that close control of gas pressure at the burner orifice of appliances is interrelated with efficient and satisfactory utilization of our fuel to a much greater extent than is generally recognized. Mr. Suffron considered the possibilities offered by designing appliances to operate at optimum rating and constant gas pressure as most attractive; also that gas appliance regulators not only are an important accessory at the present time but bid fair to occupy an even more prominent position in future developments.

Pipe Joint Research

The afternoon session, May 2nd, was started by K. R. Knapp, A. G. A. Testing Laboratory, Cleveland, Ohio, who in a valuable paper on "Rubber Gaskets for Pipe Joints and Clamps" compiled from data furnished by the Dresser Laboratories, Bradford, Pa., convincingly answered many of the questions asked by distribution engineers as to the life, performance record, etc., of rubber gaskets.

Dr. Scott Ewing, research associate, U. S. Bureau of Standards, Washington, D. C., made a short report to the conference in which he discussed some of the past activities on coatings and corrosion and future plans.

P. W. Miller, Hope Construction and Refining Company, Pittsburgh, Pa., outlined in considerable detail the work of "The Public Utility Survey Commission of Pittsburgh, Pa." The final contribution to the session on the subject of "Latest Developments in Portable Equipment" was presented by Earl H. Eacker, Boston Consolidated Gas Co., Boston, Mass. As in past years this report was primarily a summary of the operating experience and developments along this line since the previous report.

The first paper on the Friday, May 3rd, program by Allen D. MacLean, Pittsburgh Equitable Meter Co., Pittsburgh, Pa., on "Service Regulator Testing" brought out the fact that no set standard or test method has been developed for service regulators. Mr. MacLean outlined the requirements of good service regulators and recommended that performance tests be standardized on each individual property.

Mr. MacLean was followed by P. S. Young, president of the American Gas Association, who brought a congratulatory message to the distribution men and told them of their important place in the gas industry set-up, particularly since the investment in the distribution system represents the industry's largest capital charge.

Major Alexander Forward, managing director of the American Gas Association, said that he had no fear but that the distribution men charged with the responsibility of protecting the major portion of the gas industry investment would do their job well. He also praised the manufacturers of gas burning appliances for the equipment they have developed.

R. W. McClenahan, American Meter Company, Philadelphia, Pa., delivered a comprehensive summary of factors and trends in meter maintenance. He concluded that "the value of performance analysis, though clearly apparent today, will greatly increase as further data is assembled."

"The Need for Improving the Performance of Customers' Meters from the Customers' Standpoint" was the title of a paper given by H. B. Andersen, The Philadelphia Gas Works Co., Philadelphia, Pa. Mr. Andersen stressed the desirability of studying local situations more closely to make sure that meter performance on the customers' premises is all that it should be.

Meter Discussion

The morning session of the second day of the Conference was concluded by a report of the Subcommittee on Meters and Metering by David P. Allen, Washington Gas Light Co., Washington, D. C. Mr. Allen listed the subjects reported on this year; gave the program of the work and outlined the nature and scope of the investigations and tests under way.

Friday afternoon, May 3rd, after a short talk descriptive of the laboratory work by R. M. Conner, the majority of the conference delegates visited the Cleveland Laboratory of the A. G. A.

The dinner sessions Friday evening with 197 in attendance were divided into six parallel group sessions covering: Pipe; Meters; Servicing and Installation of Customers Appliances; Change Over from Manufactured to Natural Gas;

Distribution Conference in session

Safety Practices; and General. The following acted as discussion leaders: F. M. Goodwin, Boston; J. D. von Maur, Toronto; C. E. Muehlberg, New York; F. F. Ingwall, Binghamton; George Boyd, New York; M. I. Mix, Chicago. The opportunity to discuss specific problems of the moment in an informal way proved to be the outstanding success of the Conference—an innovation in procedure that doubtless will be continued.

The final session was started by a report of the "Subcommittee on Pipe Joints" by A. H. Anderson, Detroit City Gas Co., Detroit, Mich. This was in the nature of a brief progress report.

Under the title of "Effect of Sales Policies on Distribution Employees," T. J. Perry, The Brooklyn Union Gas Co., Brooklyn, N. Y., presented some very interesting thoughts and data descriptive of accomplishment realized by the Brooklyn company. Tables given by Mr. Perry showed that in the period the plan has been in effect the distribution group of employees sold 881 appliances out of a total of 3,258 appliances for all employees or 27% of the total.

H. D. Lehman, The Philadelphia Gas Works Co., Philadelphia, Pa., in a paper on "Servicing Gas Appliances" considered a number of pertinent points including what constitutes proper appliance servicing; possible organization methods to bring it about; control of quality of work and the arguments for such control with methods used; design defects in appliances and their determination in the field; importance of proper appliance installation; cost control and methods of measuring; data accumulation.

In the absence of C. C. Simpson, Consolidated Gas Co. of New York, G. W. L. R. Travis gave a brief progress report of the work of the Subcommittee on Cast Iron Pipe Standards, the final report presented at the Conference.

Production Conference Attracts Notable Gathering

CHARACTERIZED by vigorous discussions and progressive leadership, the annual Joint Production and Chemical Conference concluded a highly successful meeting May 15 at the Hotel New Yorker, New York City. Attended by more than three hundred engineers and chemists, the three-day conference brought out many valuable papers on technical and engineering subjects.

Chairman Karl B. Nagler, The Peoples Gas Light & Coke Co., in his opening remarks, reminded the delegates that the conferences had been instituted for the purpose of promoting a confidential, but none the less free and open interchange of ideas, and urged a generous participation in the open discussion following the presentation of reports and papers.

Following the chairman's opening remarks, W. C. Beckjord, Columbia Gas and Electric Co., spoke on "The Technical Man's Part in the Future Development of the Gas Industry." Mr. Beckjord urged a wider, more active participation by engineers and production men in gas sales problems, the former being characterized as the "keepers of the industry." He warned that investment costs are relatively too high and said greater emphasis should be placed on mass sales.

Mr. Beckjord was followed by Major Alexander Forward, managing director of the American Gas Association, who predicted an early revival of the industry's construction activity. "Uncle Sam is getting better in spite of liberal doses of medicine from Washington, and a period of substantial recovery is at hand," he stated.

Next on the program was the report of the Water Gas Subcommittee, read by its chairman, W. K. Beard of The Philadelphia Gas Works Company.

F. B. Parke, The Brooklyn Union Gas Co., presented a paper, "Carburetted Water Gas from Heavy Oils with Related Tar and Emulsion Problems" aimed to show a comparison of the operation and results with related tar and emulsion problems in carburetted water gas plants using heavy oils. The majority of the plants reported, said the speaker, had three shell sets equipped with back run, two companies operating with the Western Gas reversed air blast process.

Mr. Parke was followed by P. T. Dashiell, The Philadelphia Gas Works Co., whose paper entitled, "Heavy Oil Tar Handling and Emulsion Treatment" briefly summarized the present state of dehydration technique as described by Drs. Morgan and Stultzenbach.

The afternoon session convened with S. S. Tomkins, Consolidated Gas Co. of New York, chairman of the Chemical Committee, presiding. Mr. Tomkins gave a brief résumé of his associates' activities throughout the vear. mentioning how every effort was being made to bring the new edition of the Gas Chemists' Handbook out in the near future.

The first speaker of this session was A. R.

Powell, Koppers Construction Co., whose paper entitled, "The Selective Removal of Liquid-Phase Gum Formers and Napthalene by Oil Scrubbing" gave an extended discussion of the theories, principles and practices of selective absorption of such compounds as naphthalene and liquid-phase gum-formers (indene and styrene), followed by an exposé of actual operating results and analytical data which are typical of those obtained from numerous scrubbers installed by the author's company and its subsidiaries during the past ten years. In Part II of his paper under the heading "Practical Design and Operating Results" Mr. Powell gave a brief description of the Koppers equipment for selective absorption. His paper was accompanied by lantern slides and provoked considerable discussion.

The next speaker was W. H. Fulweiler, The United Gas Improvement Co., whose paper entitled, "Development of Analytical Methods for the Determination of Nitric Oxide in Gas" was illustrated throughout with lantern slides, and brought forth extended and spirited discussion when concluded.

The next paper "Fogging Oils and Gum Formations" by H. R. Mathias, Standard Oil Co. of Indiana, Chicago, Ill., covered a study of the use of fogging oil in manufactured gas systems, particularly with reference to naphthalene deposits and gum formation. As a preventive to gum formation, the speaker proposed the use of a fogging oil containing an inhibitor, showing that in an experimental set-up an oil of this type markedly decreased gum formation in the presence of nitric oxide.

High B.t.u. Gas Symposium

The final speaker of the afternoon was H. W. Alrich, Consolidated Gas Co. of New York, whose paper entitled "Progress in Purging Procedures" was offered as a résumé of work along these lines accomplished since the date of the last conference, and was announced as purely tentative in character.

The Tuesday morning session opened with a "Symposium of High B.t.u. Gas, Mid-Continent Practice," presented by L. J. Willien, Byllesby Engineering and Management Corp., Chicago, Ill. Complete and detailed reports, with exhaustive tabulated data prepared and submitted on several topics were gone over briefly by the speaker, who, in conclusion, stated that The Peoples Gas Light and Coke Co., and The Public Service Co. of Northern Illinois were doing considerable work on the production of a suitable substitute gas for an 800 B.t.u. mixture of natural and coke oven gas, a report of which it was hoped would be available for the annual A. G. A. convention next October.

W. K. Beard, The Philadelphia Gas Works Co., then presented a paper entitled, "The Production of High B.t.u. Gas in a Carburetted Water Gas Set with Particular Reference to the Use of Heavy Oil." Discussion on this paper was led by A. E. Lockwood, Stevens & Wood, Inc., New York.

"The Use of Butane in Water Gas Sets for Producing High B.t.u. Gas" was subject of the succeeding paper, read by Alan E. Lockwood, in the absence of the author, E. L. Fischer, United Light & Power Engineering & Construction Co., Davenport, Ia.

H. B. Young, The Chicago By-Product Coke Co. in a paper entitled, "Reformed Natural Gas—New Developments and Lamp Black Difficulties," listed a series of papers previously presented along the above lines, concluding with a summary of his subject which proved of much interest to the conference.

Schedule for Removal of A. G. A. Coated Pipe Specimens
(See p. 197 of A. G. A. MONTHLY for May for further details)

Date	Location	Gas Company	Gas Company Representative
June 5-7	Bryan, Texas	Community Natural Gas Co.	M. E. Adams
June 12-15	Shreveport, La.	Southern Cities Distributing Co.	Bert Smith
June 20-21	Kansas City, Mo.	Kansas City Gas Co.	C. H. Waring
July 15-17	Los Angeles, Cal.	Los Angeles Gas & Elec. Corp.	W. M. Henderson
Aug. 5-6	Milwaukee, Wis.	Milwaukee Gas Light Co.	W. E. Kemen
Aug. 8-9	Pittsburgh, Pa.	Equitable Gas Co.	F. N. Wolfe
Aug. 19-20	Atlantic City, N. J.	Atlantic City Gas Co.	Wm. P. Wilson
Sept. 9-10	Brockton, Mass.	Brockton Gas Light Co.	A. D. Matarese

Liquid Purification

The afternoon session opened with a paper by E. J. Murphy, The Brooklyn Union Gas Co., whose subject was, "Dry Box Purification and Control of Alkalinity."

"Operation Characteristics of a Liquid Purification Plant for Sulfur Removal" was the title of the succeeding paper by C. C. Furnas and R. H. Newton, Yale University, the former taking the platform. The speaker described the results of a test conducted by members of the Department of Chemical Engineering of the University on the liquid purification plant of the Connecticut Coke Co., for the purpose of determining its operating characteristics. The Seaboard process was reviewed, including the reactions occurring in the absorber when the coke oven gas is scrubbed.

Percy S. Young, president of the American Gas Association, was introduced, and referred to the production and chemical divisions as the basis of the industry and as essentially foundational "spadework." "The world's 'spadework' goes on in defiance of political and economic upheavals," he added, congratulating the committees on their fine program and large attendance.

Mr. Young was followed by Prof. W. J. Huff, Johns Hopkins University, who spoke on "Some Developments in Gas Analysis Apparatus." The automatic pipette designed to eliminate tedium, while simplifying and expediting operations, was first described, Dr. Huff speaking entirely from a series of lantern slides. He next passed to the hydraulic lift, a device for relieving the labor involved in manipulating the mercury-filled leveling bottle in gas analysis. Other items covered included intermediate scale analysis and solid reagents, and the micro-analysis of gas. This paper won considerable appreciative comment when concluded.

The final paper of the afternoon session, read by Louis Shnidman, Rochester Gas & Electric Corp., was, "Role of Sulfur in Gas and the Properties of the Products of Combustion of Gas as Regards Condensation and Corrosion."

Wednesday's sessions opened with the reading of the report of the Carbonization and Coke Subcommittee by A. B. Huyck, The Brooklyn Union Gas Company. This speaker was followed by V. J. Altieri, Massachusetts Gas Companies, Everett, Mass., whose paper entitled, "Coal Expansion" proved to be one of the most interesting and widely commented-upon of the entire conference. The author presented his subject in abridged résumé form, speaking largely from lantern slides.

M. T. Herreid, Connecticut Coke Co., presented a paper on "Breeze Screening." Mr. Herreid first discussed the various factors affecting the efficiency and capacity of screens, passing thence to a discussion of breeze-separation tests conducted by The Brooklyn Union Gas Co. at its Greenpoint plant. The equipment and method of operation and results of the above tests were described in detail and summarized by charts and tables.

"Accident Control—Coal Carbonization Plants" was the subject of the next paper by E. W. Zimmermann, Massachusetts Gas Companies. This speaker reviewed various facts and figures showing the heavy toll of industrial accidents in leading American industries, and efforts made to cut down their number.

The final session of the conference opened with a paper by M. F. Kleeberg, The Peoples Gas Light & Coke Co., on "Maintenance and Operation of Thomas Recording Calorimeters."

The concluding paper entitled, "Determination of Fusibility of Coal Ash by the Barrett Type Furnace" was read by J. M. Gonder, The Koppers Coal and Transportation Co. Mr. Gonder stated that the determination of the softening-point of coal ash had assumed an ever-increasing importance and the Barrett furnace was designed specifically for this job. He described its operating characteristics and various advantages including working parts and practical results obtained therewith.

The conference closed with an open forum discussion of various questions held over from the preceding sessions.

TESTING LABORATORY

R. M. CONNER, Director | Managing Committee: J. S. DeHART, Jr., Chairman | N. T. SELLMAN, Secretary

One of several groups which inspected the Laboratory on May 3rd

Distribution Men Inspect Cleveland Laboratory

By F. R. WRIGHT
A. G. A. Testing Laboratory

MORE than one hundred and thirty delegates including President P. S. Young, took advantage of the opportunity to inspect the Association's Testing Laboratory in Cleveland during the Twelfth Annual Distribution Conference of the American Gas Association held at the Cleveland Hotel May 2, 3, and 4. This is the largest group of gas men ever to visit the Cleveland Laboratory at any one time.

The conference program for Friday afternoon, May 3, was devoted entirely to the Laboratory. At 1:30 P.M. an illustrated address concerning the Laboratory's activities in the fields of appliance testing and research was presented by R. M. Conner, director, in the ballroom of Hotel Cleveland. Following this address the delegates were taken to the Testing Laboratory on East 62nd Street in busses chartered from the Cleveland Railway Company, where they were escorted through the plant in groups by Laboratory engineers.

Pipe Coating Exhibit

The visitors had an opportunity to see various types of gas appliances and accessories under test including domestic gas appliance pressure regulators. This latter work tied in very well with the paper on "Appliance or Low Pressure Regulators" presented by F. O. Suffron, research engineer, at the Distribution Conference on Thursday, May 2. An opportunity was also afforded delegates to see research under way on several projects as well as some of the equipment used in other investigations recently conducted, such as the industrial gas research problems and the investigation of domestic cooking by gas and by electricity.

Another interesting part of the exhibit at the Laboratory was the equipment assembled by the Subcommittee on Pipe Coatings and Corrosion of the Distribution Committee, and the demonstration of tests on various specimens conducted during the visit by Dr. Scott Ewing, who has been in charge of research for this subcommittee at the Bureau of Standards during the past several years. A part of this exhibit was on display at the Cleveland Hotel during the first day of the conference. A great deal of interest was shown in the portable pinhole detector for testing pipe coatings developed by C. F. Turner, chief chemist of The East Ohio Gas Company, and chairman of the subcommittee during the current year. The effectiveness of this equipment in detecting small pinholes in coatings, not visible to the eye, was demonstrated both at the Conference and at the Laboratory. The equipment is mounted on wheels so that it can be moved about by hand, is simple in design, and easily operated by anyone. It seems that it should find considerable use throughout the industry for testing pipe coatings both in the field and at central distribution points.

The fact that more than half of the delegates registered for the conference inspected the Laboratory, coupled with the fact that the majority of the others had visited it at some previous time, indicates the enthusiasm and interest in the Laboratory's program shown by the distribution men of the industry. Probably the primary factor that contributed to this interest was the pipe joint research investigation carried out at the Laboratory over a period of more than four years from 1929 to 1934. The results of that study have proven extremely beneficial to the industry and it is expected that increasingly greater benefits will be derived from it as time goes on. Two sets of standards, one "A. G. A. Requirements for Bell Joint Clamps," and the other "A. G. A. Requirements for Mechanical Joints for Cast Iron Pipe Used for Gas Distribution," were developed as a result of this work. The Laboratory is now in position to test such equipment for approval. These requirements were discussed in considerable detail in an article by the author in the February issue of the AMERICAN GAS ASSOCIATION MONTHLY.

Research Program Approved

The paper on "Rubber Compounded Gaskets for Pipe Joints and Clamps," presented at the conference by K. R. Knapp, chief engineer of the Testing Laboratory, aroused considerable interest in this subject. Mr. Knapp, formerly associated with The United Gas Improvement Company, was in direct charge of the pipe joint research program conducted at the Laboratory a few years ago.

One of the important developments of the conference was the stress laid on the importance of research and the desirability of centralizing work of this kind on problems of general interest to the industry. At the Saturday morning session F. M. Goodwin, vice-president, Boston Consolidated Gas Company, and a member of the A. G. A. Distribution Committee, addressed the conference, pointing out that many problems of mutual interest to all member gas companies might to advantage be assigned to the Testing Laboratory for investigation.

He stated further that this procedure should result in a saving of thousands of dollars to utility companies as it would eliminate much duplication of effort and at the same time make available more complete data and information on subjects studied since such investigations could be made more comprehensive than would be justified on the part of individual companies. Mr. Goodwin was one of the original leaders in the move that resulted in the pipe joint research program carried out by the Laboratories a few years ago.

In concluding his address, Mr. Goodwin presented a motion recommending in effect that the Technical Section be requested to draw up a program of research involving various matters under its jurisdiction, insofar as they relate to distribution problems at least, and further, work out ways and means of grouping the various research problems which are now under way or may hereafter be started by individual companies, and turn them over to the Association's Testing Laboratory for complete investigation. The motion, after considerable discussion upon ways and means of carrying out such work, was approved by the conference.

It should perhaps be pointed out here that the Testing Laboratory has facilities available for carrying on extensive research programs for the industry. The projects which have been completed for various branches of the industry, such as the mixed gas research investigation, pipe joint research, industrial gas research, and studies of gas and electric appliances, as well as the continuous program of research carried out for the past 10 years for the 32 requirements committees, have indicated the value of such a research organization. The various branches of the industry are urged to take advantage of the facilities available at the Testing Laboratory on the numerous problems common to a majority of gas companies. It is believed that this is one very logical means of reducing operating costs and of making available better types of equipment through which a higher grade of service can be rendered to the public.

Group inspecting the Industrial Gas Research section of the Laboratory

The Pneumatic Pipe Saw

By JOHN H. WALDRON

The Brooklyn Union Gas Company

ONE of the most interesting types of mechanical equipment introduced to the distribution engineer in recent years is a pneumatic pipe saw. This little device is a circular saw operated by an air motor, mounted on a self-conveying carriage; originally designed to be operated by an electric motor, it has since been adapted to operate with a compressed air motor.

This saw cuts either cast iron or steel pipe, 8″ in diameter and larger. It automatically makes a perfect cut around the entire circumference of the pipe with a speed and accuracy for pipe cutting heretofore unknown to the distribution engineer, displacing the tedious and uncertain method of diamond pointing and cutting mains in position.

Recently it became necessary to permanently by-pass a 20″ high pressure gas main to provide a lane for sewer construction. In the street intersection where the by-pass would necessarily have to be made were many other subsurface structures. At the points where the cuts in the 20″ main were to be made the congestion was greatest; at one end the 20″ main was directly under a paralleling 12″ gas main, crossed at right angles by a 6″ water main and a 6″ gas main; at the other end were car tracks and an electric duct. It would have been physically impossible to cut the 20″ main at either end if the method of diamond point cutting were to have been used. The pipe saw requires a clearance of but twelve inches around the pipe, and on both ends of the 20″ cut this space was available. The first cut was made in fourteen minutes and the second in thirteen minutes. The section of pipe cut out was ten feet, four inches long, providing a space in which to place a specially fabricated permanent by-pass.

Saw in operation

The pneumatic pipe saw makes it possible for the distribution engineer to have his cut-in pieces fabricated to exact dimensions, for his cuts will be positive and his cut-in pieces, of whatever nature, will perfectly fit the space originally planned. This statement is made with the assurance of results already obtained by using the pneumatic pipe saw in cutting in for connections on 36″, 30″, 24″ and 20″ high pressure transmission lines.

This saw has also been used successfully by the writer in cutting bells and spigots off of several miles of old 12″ cast-iron pipe to adapt the pipe to the use of mechanical joints.

Proceedings from 1908 Available

A COMPLETE set of the bound Proceedings of the American Gas Light Association, the American Gas Institute and the American Gas Association beginning with the volume of 1908 are offered for sale by Edward L. Rieha. Mr. Rieha would also like to dispose of a set of the Proceedings of Western Gas Association, from volume year 1892 to 1906. Anyone interested in securing these volumes should communicate with Mr. Rieha at 1516 Lexington Building, Baltimore, Maryland.

Personnel Service

SERVICES OFFERED

Manager with long experience in handling properties having up to 3500 meters, desires change. Can furnish desired references. Now employed. Has operated natural gas property for past five years. **940.**

Utilization and **Sales Engineer;** long experience New York metropolitan area and adjacent vicinity in house heating, industrial water heating and restaurant work; also testing and installation. Well acquainted with gas companies, commercial outlets, architects and others in district mentioned. Have worked for gas companies and manufacturer of gas appliances. **941.**

Advertising, Publicity, **Public Relations.** Practical experience in all phases of these endeavors with large western gas and electric company and two outstanding railroads, covering many years; have conducted employees' magazine. **943.**

Gas Engineer of broad experience in all branches—Supervising Engineer in Holding Company—successful in improving operating and distribution conditions—Inventories, appraisals, reports of examination, rate structures, budgets, organization, supervision. Recognized gas expert. **944.**

Sales Engineer desires employment; broad experience with Eastern Gas Utility. Friendly consumer relations of first importance. Specialized in sales, service and maintenance covering House Heating, Industrial Steam and Water Heating. Married. **945.**

Experienced office executive, **Sales Promoter,** and salesman. Associated with leading manufacturers for over fifteen years. Contact with utility companies, building, dealer and retail trades. Desirous of locating with a progressive organization. Thoroughly experienced in all phases of office routine, supervision of help, appliance construction, selling and promotional work. **946.**

Appliance Salesman. Experienced and capable salesman is considering new connection. Anything in the stove line, which includes supervision or managerial ability, or salesmanship is acceptable. **947.**

Gas Engineer and operator with fifteen years' experience including manufacture, distribution, sales promotion and especially experienced and trained in the present necessary field of **Customer Relations** and **Service** desires to associate himself with a company needing an operator, local manager, a competent department head or a customer relations supervisor. **948.**

Aggressive young man, engineering graduate, whose 10 years' **sales** and engineering experience includes house heating, winter air conditioning, and industrial gas, in manufactured and natural gas territories, wishes to make advantageous change. **949.**

Industrial Sales Engineer. Experience gained with Eastern utility. College graduate. Member ASME. Qualified make surveys, design burners, piping and auxiliaries. Familiar with all principal metallurgical operations, ceramics baking, etc. Understands space heating and air conditioning. Age, experience, ability sufficient take charge territory or department. Outstanding sales ability. **950.**

Manager—Fifteen years' practical experience in gas industry operating small properties. coal, water and butane gas. Familiar with high and low pressure and have made change over coal gas to water gas and water gas to butane. Am interested in small plants and know what it means to maintain friendly public relations. **951.**

Industrial gas sales enginer (35) six years' experience large Eastern combination company. Broad experience in sales, installation and service of varied industrial appliances as: bake ovens, boilers, furnaces etc. Familiar with all competitive fuels, preparation of estimates and cost surveys, and economic rate determinations. University graduate, married. **952.**

Engineering graduate with several years' varied experience in design, manufacture, erection and operation of gas plant equipment, and in the supervision of **plant operation,** desires supervisory or technical position with company producing blue or carburetted water gas alone or in connection with coal, refinery or natural gas. Married. **953.**

SERVICES OFFERED

Salesman—with access to gas company officials and plumbing and mill and mine jobbers on Atlantic Seaboard and West to Pittsburgh, Columbus and Cleveland. Wants engineering, mechanical or appliance line. 12 years' experience in this territory as salesman, sales promotion man and sales manager with two prominent manufacturers. **954.**

Working Foreman, for water gas plant, send-out about 100,000. 13 years' experience making gas, able to make general repairs and welding; familiar with high and low-pressure. Was foreman of plant 5 years with 150,000 send-out. South preferred. **955.**

Sales Engineer with established contacts and a New England office seeks exclusive representation with some manufacturer of financial standing who wishes to establish his line in the East. Background includes both gas and electric utility sales as well as managerial experience plus an excellent record with manufacturers. **956.**

Would like to hear from a company that is seeking a man of experience and personality to develop **house heating** industrial and commercial sales. If you have a virgin territory, one that requires personal contact to build good will and increase sales, communicate for further particulars. **957.**

Gas Appliance Sales Engineer now employed with one of largest manufacturers; 6 years' research and development and sales engineering cooking appliances. Thoroughly familiar all combustion and testing problems. Interested sales engineering with manufacturer or utilization department with utility; (35) Married. College graduate. **958.**

Executive Engineer for gas and electric properties open for any position in either industry needing a competent thoroughly trained man, can furnish the best of references from present and past employers, now employed but must make a change. **959.**

Graduate Engineer; B.S. and M.S. degrees in Mechanical Engineering, major in Gas Engineering; 4 years with large natural gas utility; considerable newspaper experience; especially interested in **air conditioning** field; (30) married. **960.**

Sales Representative—experience selling utilities and dealers for reputable gas range manufacturers for past 10 years, majority time metropolitan area; have also traveled Eastern states, desires to make connection as sales manager or representative for reputable manufacturer. Has good personality and is well educated. American (37). **961.**

Manufacturers Representative, with exceptional experience and connections among architects, builders, plumbing supply jobbers, plumbers and gas companies, desires a medium or low priced line of gas ranges for the metropolitan New York City area. Calling on this trade for sixteen years selling gas equipment and specialities. **962.**

Experienced **Engineer-Manager** has held practically every position, with emphasis on engineering and operation phases, covering design, construction and operation every type water gas plant, operation verticals, coke ovens, by-product recovery, including natural gas distribution. Useful at headquarters or on property; specialist Washington plan rate basing and making. **963.**

Engineer with utility **accounting** experience. 10 years rate engineer with gas and electric utility company. Experience includes franchises, cost allocations, contracts and research in utility management problems. Now engaged on operating property records as prescribed by the N. Y., P. S. C. **964.**

Sales—New Business—commercial manager: Thorough training, outstanding successful record initiating, directing advertising, publicity, merchandising campaigns; supervising industrial gas and power sales; developing costs, rates, selling prices; handling public relations, public ownership agitation, rate reduction demands, and appearing before commissions, boards, etc., on various matters; expert negotiator. **965.**

SERVICES OFFERED

Salesman with 18 years' gas company experience, 8 years' selling all types of gas appliances, domestic, hotel and house heating, desires position, will go anywhere, own car. (39) Married. **966.**

POSITIONS OPEN

An old, established concern having a complete line of gas fired boilers and furnaces desires high class **representation** in eastern, southern, and central territory. Will be interested if your lines are non-competitive. **0286.**

Sales Representative or **Distributor.** A large middle west manufacturer of a complete line of gas-fired automatic water heaters desires representation in the Los Angeles and Southern California territory. Prefer those who are now representing other lines of gas appliances, also those who can properly service 4,000 units now in that territory. **0287.**

Man familiar with **making water gas** and who can make the necessary repairs around a gas plant. Married man preferred, state wages expected and experience. **0289.**

Consumer salesman for Maine city; must be thoroughly experienced in house-to-house selling of appliances—refrigerator training highly desirable. Drawing account against commission; see that your letter gives full details of education, experience and remuneration required. **0291.**

Sales representatives in a great number of the states; the merchandise which we manufacture includes conversion type burners for natural, manufactured and mixed gas, safety pilots, electric and manual controls and miscellaneous accessories. **0292.**

One of the oldest and largest manufacturers of a complete line of gas burners is in the market for a **General Sales Engineer.** He must be a Mechanical Engineer Graduate, between the ages of 26 to 34 years. He must know the chemistry of gas as applied to combustion. **0293.**

Leading water heater manufacturer requires **salesmen** to call on Utilities. Must have previous experience. Good Territories open. Drawing account against commission. Replies held confidential. **0294.**

ACTIVE

April 10th last a return postal was mailed to all those whose names then constituted our active list of confidential classification records. The card was printed throughout, carried return postage, and in addition to calling for current mail and telephone address, as well as request as to whether filed papers should be continued "active," bore the following message: *"In order that our Personnel file may be accurate and up-to-date, and so of the greatest possible use to those who utilize its facilities, kindly assist by filling in and returning the attached card."*

Forty per cent of the reply or return halves had not been received thirty days later (May 10), not including the undeliverable cards which were returned by postal authorities.

This would seem to confirm our New Year's greeting (Monthly, January, 1935) "Personnel business is definitely picking up."

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* Died February 27.

AMERICAN GAS ASSOCIATION, Inc.

HEADQUARTERS, 420 LEXINGTON AVENUE, NEW YORK, N. Y.

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